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The Manitoba Medical Review

Vol. 41 JANUARY, 1961 No. 1

Surgery

Trends in the Surgical Treatment of Colonic Diverticulitis

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The treatment of diverticulitis is primarily medical. A small proportion of patients, however, present with or subsequently develop manifestations of the disease which constitute indications for surgical intervention. Over the past decade or two there has evolved a gradually changing philosophy with respect to the place of surgical intervention in the treatment of diverticulitis.

Fifteen or twenty years ago the surgery of diverticulitis was confined to the complications of the disease; namely (1) Obstruction, (2) Haemorrhage, (3) Perforation in one of its several forms and (4) Those cases in which the possibility of carcinoma could not be ruled out.

Obstruction

The obstruction resulting from sigmoid diverticulitis is usually obstruction of the large bowel, although small bowel obstruction may occur as a result of adhesions between small bowel and the inflammatory process in the left lower quadrant.

The colonic obstruction may be due either to pericolic inflammation followed by contraction of the fibrous tissue, the so-called stenosing peridiverticulitis, or it may be due to spasm and edema of the sigmoid. Whenever there is narrowing of the lumen of the colon carcinoma must be considered as a possible concomitant or alternate lesion. The following patient illustrates some of these problems.

Case No. 1 — U.A.H. No. 165304

This 68-year-old woman with a long history of constipation was admitted to hospital on the 10th of January, 1958 with complaints of left lower quadrant pain and increasing constipation of one month's duration. Three weeks before admission she had been treated in an outlying hospital for lower abdominal pain, nausea, obstipation and abdominal distention. The diagnosis at that time was "incomplete large bowel obstruction" and she was successfully managed with intragastric suction, intravenous fluids and enemata. There was no history of bleeding from the bowel or melena, but the patient had noticed a recent weight loss of five pounds.

Examination was not remarkable apart from the presence of an ill-defined intra-abdominal mass in the left lower quadrant.

Presented at the Manitoba Medical Association meeting, September 27, 1960, at the Marlborough Hotel, Winnipeg.

These features plus her recent episode of almost complete obstruction made us favour a diagnosis of carcinoma. On the other hand the long history of constipation with occasional episodes of cramping pain, the absence of blood in the stool and the finding of abdominal tenderness tended to be in favour of a non malignant process.

Barium enema examination demonstrated a long, narrow segment of sigmoid colon with several diverticula in the adjacent bowel. There was associated spasm. The ends of the defect tended to be funnel-shaped rather than shelf-like, a feature in favour of diverticulitis. The most convincing evidence that this was diverticulitis rather than carcinoma was, however, that the mucosa appeared to be intact throughout the length of the defect. Of course, even if a diagnosis of diverticulitis could be made with certainty the narrowed segment might still conceal a hidden carcinoma.

Richard Schatzki[7] of Boston has described the radiological features which help to distinguish diverticulitis from carcinoma (Table 1). This particular differential diagnosis, when a mass is present in the left lower quadrant, is one of the few instances where the radiologist is more accurate preoperatively than the surgeon is at the time of laparotomy.

Table 1
X-ray Features of Diverticulitis As Compared With Carcinoma

1) Diverticula typically present.
2) Long segment involved.
3) Mucosa intact in involved segment.
4) Adjacent colon spastic.
5) Ends cone-shaped instead of shelf-like.
6) No enlargement of defect on repeated examinations.

A one-stage resection was carried out. There was no need for preliminary colostomy in this particular case, as she was not obstructed at the time of her surgery. The surgeon who resected the bowel felt an encircling, stenosing mass which appeared hard enough to be carcinoma, and in addition he felt that there was a portion of the mass projecting into the lumen of the bowel. It was only after the specimen had been opened along its antimesenteric border that the true diagnosis became apparent. As had been predicted by the radiologist the mucosa was intact ruling out the possibility of primary carcinoma. In addition the mucosal surface displayed the orifices of numerous diverticula some of which led out into the inflammatory area. Extreme fibrous thickening of the bowel wall was present in and adjacent to the inflammatory area.

The pathologist diagnosed this as "subacute diverticulitis." The patient's hospital stay was quite uneventful.

Haemorrhage

The second complication of sigmoid diverticulitis is haemorrhage. Bleeding occurs in some 10 - 30% of cases of diverticulitis[6] and exsanguinating haemorrhage[3] is occasionally seen. It is said, however, that if a patient has got diverticulitis and is bleeding grossly the blood is probably coming from a second lesion, usually a polyp or a carcinoma[1]. When gross bleeding does occur in connection with diverticulitis it presents a therapeutic problem on which there is no unanimity of opinion. The next case illustrates just such a patient.

Case No. 2 — U.A.H. No. 93796

This 70-year-old gentleman with known diverticulosis entered hospital on the 10th of September, 1955 complaining of lower abdominal discomfort for one week, accompanied by weakness and the passage of six tarry stools during the 18-hour period immediately preceding his admission. He had had no indigestion. His pulse rate was slightly elevated. There were no significant physical findings on abdominal examination. His haemoglobin was 11.6 or 80% of normal. A barium meal did not disclose any abnormality. Barium enema demonstrated diverticula of the descending and pelvic colon with spasm and irritability of the latter.

On conservative management this patient continued to pass two or three tarry stools per day. On one occasion his haemoglobin fell to 9.7 grams percent with a red cell count below 2½ million. These values could, however, be readily restored to normal by means of blood transfusion. It became apparent during his first week in hospital that he was not going to stop bleeding on a medical regime and he was therefore prepared for surgery. A single-stage resection was carried out and the haemorrhage was arrested. Pathological examination of the surgical specimen disclosed no lesion other than diverticulitis. The patient's convalescence was uneventful.

Perforation

The most common complication of diverticulitis of the sigmoid colon is perforation and the perforation is most often into a walled off abscess, although free perforation into the peritoneal cavity or the spontaneous development of a fistula may occur.

Case No. 3 — E.G.H. No. 45919

This 38-year-old man, who was somewhat of a derelict, gave no past history of diverticulitis. He was admitted to hospital on the 16th of August 1956 with severe left lower quadrant pain and inability to move his bowels for the five days preceding his admission. In addition he was having great pain on urination and difficulty passing his water which he had noted to contain faeces and gas. He was acutely ill with a temperature of 103° F., and an abdomen that was distended, guarded and exquisitely tender.

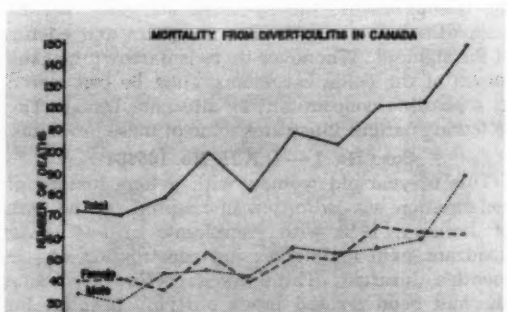
On cystoscopy, as so often happens, the fistulous opening could not be identified. However, when dye was injected into the bladder, opaque material could be seen in the rectum. The next day a barium enema examination was carried out and barium was observed outside the rectum, presumably in the bladder.

Three operative procedures were necessary before this patient was cured of his fistula. In August 1956 he had a transverse colostomy to defunction the distal colon. By December 1956 the inflammation about the fistulous tract had subsided fairly well, and the sigmoid colon was resected and the fistulous opening in the bladder closed. His final operation was in April 1957 at which time closure of his colostomy was accomplished and continuity of the bowel re-established. The long periods between operations are typical of the prolonged invalidism and morbidity characteristic of stage-procedures carried out in emergency situations for advanced pathological processes.

Evolution of Indications for Interval Surgery in Sigmoid Diverticulitis

McLaren[5] of the Royal Infirmary of Edinburgh states "The statistics of the Registrar General show that in England and Wales some 500 persons die every year of diverticulitis of the colon, and it is interesting to note that this number has remained almost constant since 1935."

In Canada (Graph No. 1) the mortality from diverticulitis of the colon has risen from 73 in 1950



Graph No. 1

to 148 in 1959[10]. It is possible that this two-fold increase in mortality over the ten year period is partly due to increased recognition of diverticulitis as a potentially lethal disease by reporting physicians. However it would appear far more likely that the increased mortality reflects the fact that a greater proportion of our population are living longer; living longer with their initially benign and asymptomatic diverticulosis; living sufficiently

longer, in fact, to have their diverticulosis progress to diverticulitis with one of its many lethal complications.

What then should be done to lower the mortality of this supposedly benign disease? Today, surgical intervention in diverticulitis of the sigmoid colon is justifiable not only in the management of the complications of the disease; perforation, obstruction, and haemorrhage; but also as a prophylactic measure in those cases where the development of life endangering complications can be predicted[2, 4, 8, 9].

It is of considerable interest to examine how this new philosophy with regard to the management of diverticulitis has come about. Certainly one of the fundamental reasons is to be found in the decreased mortality from surgical intervention. Our own experience in two University of Alberta teaching hospitals will serve to illustrate the increased survival of patients undergoing operation for sigmoid diverticulitis. In the nine year period from 1940 to 1948 inclusive there were four deaths in eleven patients while in a comparable period from 1949 to 1957 inclusive there were two deaths in forty-nine patients. These figures are not significant because of the small number of cases involved, but reports from groups across the North American continent have shown a similar trend.

This remarkable improvement in surgical mortality is not due, in any appreciable degree, to a change in technique, for there have been relatively few improvements in the actual method of carrying out the operative procedure. The increased likelihood that the patient will survive the operation is due, rather, to improvements in total surgical care. Some of the areas in which this improvement in total surgical care has been influential in reducing mortality are:

(1) Increased utilization and efficiency of diagnostic facilities including barium enema x-ray examination.

(2) Present day methods of pre-operative assessment and preparation of the patient for surgery.

(3) The use of sulfonamides and antibiotics.

(4) The availability and liberal use of whole blood for the replacement of blood loss and the correction of chronic blood volume deficits.

(5) A better understanding of fluid and electrolyte therapy.

(6) Recent advances in anaesthesia have contributed immeasurably to patient survival.

(7) A number of details of postoperative care including intestinal decompression, early ambulation and measures directed at the prevention of respiratory complications.

Twenty years ago when the operative mortality was 15%, 20% or even 25%, surgery was understandably reserved for advanced cases. As operative survival improved the indications for surgical intervention became extended and this, in itself, resulted in a further reduction in operative mortality for two reasons:

1) Operation began to be performed on younger patients with the disease and

2) Operation began to be performed on patients during intervals of quiescence of their disease.

It is interesting to note that at the University of Alberta Hospital in the two consecutive nine year periods under review the proportion of patients with diverticulitis undergoing surgical intervention rose from 6.8% (7 of 103 patients) in the first period to 14.2% (25 of 175 patients) in the second period.

Another aspect of this trend to earlier operation is of interest. Formerly all resections were done in three stages, namely:

1) Colostomy

2) Resection

3) Closure of Colostomy

As patients with less advanced pathology came to operation, and as patients came to elective surgery during a quiescent interval, the need for stage procedures diminished and for the first time it became safe to carry out single-stage resection of the sigmoid colon. This is well illustrated in the present series in which there were no one-stage procedures carried out in the first period while 17 single-stage resections were carried out in the second nine year period. It should be understood that one-stage resection is indicated only in the absence of obstruction and when a completely satisfactory anastomosis can be accomplished. The fact that there was no mortality in these 17 cases would indicate that sufficient caution was exercised in the selection of patients for this procedure.

The postoperative morbidity has also been satisfactory in those patients who were resected in a single stage (Table No. 2). Only 12% of these patients had postoperative complications, compared with a much higher incidence after other procedures. The selection has, of course, an important influence on these figures.

Table 2
Non-fatal Complication Rate

After single stage resection	12%
After exploration and/or drainage	18%
After colostomy only	100%
After multiple stage operations	57%

A further benefit from the policy of earlier surgical intervention in sigmoid diverticulitis is reflected in the length of hospital stay. The average hospital stay after multiple-stage resections was 70.4 days while after single-stage resections it was 15.4 days. Significant reduction in invalidism and in the length of time the wage earner is unproductive therefore occurs when single-stage resection is possible.

Patients Who Should Come to Surgery Earlier

If one believes that diverticulitis is basically a medical disease but also that appreciable benefits

will accrue from bringing certain patients to surgery at an earlier date, then the question of who should have elective surgical intervention is, of course, of paramount importance.

Fortunately, it may be possible to select those patients who are destined to suffer the serious complications of diverticulitis and bring them to surgery during a favourable period in their disease process. The practitioner, by carefully following up each patient who has acute or recurrent diverticulitis, should be able to determine the pattern of disease in the individual case and govern himself accordingly.

Of patients suffering from an acute attack of diverticulitis of the sigmoid colon approximately one third will have no further trouble following the subsidence of their acute attack. Another one third will have recurrent troubles but can be quite satisfactorily carried on a medical regime. A final one third will progress to complications which will eventually require surgical intervention. We feel that by careful follow-up patients may often be recognized as belonging to the third group and be recommended for surgery before serious complications arise.

There are three groups of patients in whom further difficulty can be expected.

(1) Those who have recurrent attacks of acute inflammation with pain, fever, leukocytosis, abdominal tenderness and guarding.

(2) Those who have repeated episodes of incomplete large bowel obstruction, whether the obstruction is permanent and due to fibrosis or whether temporary and due to spasm and edema.

(3) Finally, those patients who develop severe or persistent urinary tract symptoms during the course of an acute attack of diverticulitis.

All of these indications become particularly urgent if the patient has been on an adequate medical regime which has not controlled the disease or if the patient is under 50 years of age.

We are accustomed to thinking of diverticulitis as a disease of those over 50, and so it is for the most part. For this reason, with our gradually aging population, we can expect to see it more frequently in the years to come than we have in the past. However, diverticulitis is more common in the younger age group than is generally supposed. The next three cases will illustrate this point, although they are being presented for other reasons. Each of these cases falls into one of the categories for which we would now recommend interval sigmoid resection.

Case No. 4 — U.A.H. No. 40432

This 48-year-old woman was admitted to hospital on the 20th of October 1957 complaining of recurrent episodes of left lower quadrant pain for ten years. These episodes of pain associated with fever would occur two or three times a year and last for several days. The pain was aggravated by walking or moving her bowels and was relieved by lying down or by the application of local heat. No doubt her age accounted, in part, for the diagnosis of pelvic inflammatory disease which had previously been made in this case, since it is generally assumed that diverticulitis does not occur at this young age.

It was only after ten years of progressively increasing symptoms that barium enema examination was finally carried out. The films revealed numerous diverticula in the sigmoid and ascending colon with considerable associated spasm.

Because of her repeated episodes of inflammation surgery was recommended. At laparotomy the left Fallopian tube that had been assumed to be the cause of all her trouble was perfectly normal. Many diverticula were obvious in the left colon with considerable thickening of the bowel and evidence of associated inflammation. A one-stage resection of a long segment of bowel was carried out and reported microscopically as chronic diverticulitis. This was not unexpected as she was quiescent at the time of surgery. Her postoperative course was quite uneventful and she had no further attacks of salpingitis.

Case No. 5 — U.A.H. No. 93274

This gentleman was only 33 years of age when admitted to hospital on the 23rd of December, 1949. At that time he had symptoms suggestive of an acute abdomen of 18 hours duration and a preoperative diagnosis of acute appendicitis with perforation was made. At laparotomy the appendix was normal. The sigmoid loop was displaced to the right of the midline and it was obvious that he had a diverticulitis and peridiverticulitis in this area. There was some cloudy fluid in the peritoneal cavity, but no clear-cut point of perforation could be identified. The area was drained and the abdomen closed.

During the next seven years the patient had repeated attacks of crampy left lower quadrant pain accompanied by clinical evidence of incomplete large bowel obstruction. Barium enema examination following one of these attacks demonstrated numerous diverticula of the left colon with spasm of the sigmoid segment, but with no evidence of obstruction.

After seven years of recurrent bouts of inflammation and partial obstruction the patient insisted that something be done about it and, since the principles underlying interval surgery for diverticulitis had become crystallized during this time, his doctor was inclined to agree with him. A single-stage resection was possible in this case, as there was no sign of obstruction at the time of surgery. The pathological report was "chronic suppurative diverticulitis." The patient has been completely well ever since.

Case No. 6 — U.A.H. No. 123300

This case presents features which would make it acceptable for interval surgery according to two of the above criteria. It is presented here because the deciding factor was the urinary symptoms associated with an acute attack of diverticulitis.

This patient was admitted to hospital on the 18th of August 1953 at which time he was 39 years of age. He complained of bouts of lower abdominal cramping pain for two years. Thirteen months previously he had developed an acute abdomen and was considered to have acute appendicitis. At laparotomy the surgeon found a perforated diverticulum of the sigmoid colon and drained the left lower quadrant.

Following this operation the patient's symptoms continued and, in fact, became more severe and constant. Despite strict adherence to a medical regime he had several exacerbations of pain with severe cramping after every meal for the three weeks preceding his present admission. These symptoms in themselves would constitute an indication for surgical intervention by our criteria. However, the consideration that persuaded us beyond a shadow of a doubt that he should have a sigmoid resection was the occurrence of two premonitory episodes of dysuria and urinary frequency immediately preceding admission.

The only physical finding of significance on admission was some left lower quadrant tenderness. The barium enema showed spasm of the proximal sigmoid and diverticula were present.

This patient, too, had a one-stage resection. It is interesting to note that he had an abscess, which was sterile on culture, at the site of his old perforation. The walls of the abscess were formed by the anterior abdominal wall, the sigmoid colon, the small bowel and the bladder. In spite of this finding at laparotomy a single-stage resection was carried out without difficulty and the patient's convalescence was quite uneventful. It is quite probable here that resection averted the formation of a colovesical fistula and the necessity of a multi-stage procedure.

Summary

In this paper we have attempted to draw attention to the fact that diverticulitis can no longer be looked upon as a completely innocuous disease. There is evidence to suggest that advances in total surgical care over the past 10 - 15 years have resulted in a considerable decrease in the mortality and morbidity associated with surgery for this condition, particularly when this surgery is carried out in an interval phase and preferably on younger patients. We feel that it is possible to forecast with some accuracy those patients in whom serious or even life taking complications of acute diverticulitis may occur. The three criteria for interval surgery in diverticulitis are:

(1) Those patients with recurrent bouts of inflammation in the left lower quadrant.

(2) Those patients with recurrent episodes of incomplete large bowel obstruction.

(3) Those patients who, with an attack of acute diverticulitis, demonstrate associated urinary signs and symptoms.

We believe that careful follow-up of patients with acute diverticulitis and the recommendation that resection be performed on those patients falling into one of these three categories will improve the morbidity and mortality figures in this disease.

In closing this presentation it gives me a great deal of pleasure to acknowledge my indebtedness to Dean W. C. MacKenzie and Doctor S. T. Norvell, Jr. who collected the data on which our series is based.

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Obstetrics & Gynecology

Vesicovaginal Fistula

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The misfortune that may befall a female in the formation of a vesicovaginal fistula remains one of the difficult challenges to surgical therapy. Whereas in former years this pitiful condition resulted from primitive obstetrical methods, such as pressure necrosis due to a very prolonged and protracted labor or after a difficult forceps extraction, nowadays it is rarely seen after childbirth in countries where modern concepts of obstetrical practice are applied. The principal causative agent of late is the trauma incident to gynaecological surgery, chiefly total abdominal hysterectomy, Wertheim operations, and vaginal operative procedures. Extension of neoplastic disease and radiation necrosis play lesser roles in its causation.

From a historical standpoint, this dreaded condition defied early attempts at repair by surgeons until the classical efforts by Marion Sims, about one hundred years ago. His introduction of a method of vaginal repair with silver wire was partially successful in a group of Negro slaves afflicted with this condition. Since that time many methods of repair have been employed with generally poor results, frequently necessitating multiple operative attempts. Dieffenbach referred to vesicovaginal fistula as "the greatest misfortune that can happen to a woman, the more so because she is condemned to live with it and cannot hope to die from it."

This communication is presented to call attention to an effective method of repair of vesicovaginal fistula that has been employed by us at the Jewish General Hospital in Montreal and which has been highly successful in curing the lesion on the first attempt at closure. This method was first used at our hospital by one of us (G.J.S.) in 1948, in collaboration with the late Dr. Max Ratner, and was the subject of a presentation two years later before the Canadian Obstetrical and Gynaecological Society in 1950. At about that time, O'Connor enthusiastically described his results with a similar approach to this problem and later published a monograph describing his technique and results. Publications of a similar technique were presented by Sargent, Marquardt, and Bramhall and Marshall.

The technique advocated is essentially a suprapubic approach to the fistula, mobilization of the posterior and lateral walls of the bladder, and bisection of the bladder down to the fistulous tract and complete excision of the fistula. It allows for excellent exposure of the fistula, and fulfils a cardinal principle of plastic surgery, in that adequate mobilization of the walls surrounding the fistula can be obtained without undue tension, which could lead to a compromise of blood supply. In addition an accurate approximation of the bladder wall can be obtained under vision. In essence the procedure is similar to that employed by urologists in bladder diverticulectomy, where the bladder wall is split down to the diverticular orifice and the incision is extended to surround this orifice.

This avenue of approach is particularly adaptable to the fistulous tract situated above the interureteric ridge and opening high in the vagina. This is the usual site of communication where fistula develops after a total hysterectomy. In addition, where previous attempts at vaginal repair of vesicovaginal fistula have proven unsuccessful and consequent fibrosis has become troublesome, this suprapubic approach has much to commend it. On the other hand, the vaginal route appears more suited to the treatment of an urethrovaginal fistula or one in which the vesical neck is involved, as occurs after obstetrical trauma.

Moir's review of 100 consecutive cases of vesicovaginal fistula revealed that 65% were caused by gynaecological trauma, and 35% by obstetrical trauma. It is interesting to note the high percentage of cases that have undergone previous multiple repairs for closure of the fistula (Tables I and II).

Table I
Gynaecological Causes of Fistula in 64 Cases

Hysterectomy:	
Abdominal or vaginal	23
Wertheim	5
Colporrhaphy (including "Manchester" operation)	18
Radium	5
Congenital abnormality	2
Millin sling	3
Aldridge sling	1
Ulceration of obscure origin	2
Amputation of cervix	1
Myomectomy	1
Vaginal fixation	1
Cotton-reel in vagina	1
Abdominoperineal resection for carcinoma of the rectum	1

(C. Moir)

Table II
Previous Operations
(Including transvesical and transperitoneal operations)

No. of Operations	No. of Cases
None	25
1	23
2	7
3-5	22
6-8	5
9-11	3
12	1
17	1
18	1
19	1
Not stated, or "many"	11

(Moir's series, showing high percentage of multiple previous operations prior to his operative repair.)

Presented at the Annual Meeting of the International College of Surgeons, Canadian and United States Sections, Marlborough Hotel, Winnipeg, September 28, 1960.

There are certain general principles which must be applied in the handling of vesicovaginal fistulae, no matter which route is adopted.

1. A complete urological study by intravenous urography and cystoscopy should be carried out in order to determine the exact site of the fistula and its relationship to the ureteral orifices. Multiple fistulous tracts may be present and should be looked for. The insertion of methylene blue into the bladder may be of value in demonstrating the presence of a fistula.

2. After taking cultures of the urine, the elimination of infection by the administration of appropriate antibiotics is a most significant factor in ensuring a successful closure. The demonstration of a clean fistulous tract by cystoscopic examination should precede any attempt at repair, and measures should be taken to keep the vagina clean with douches. Some surgeons have employed oestrogens in the hope of improving the texture of the vaginal and bladder tissues. We have used oestrogens only in the post-menopausal women.

3. It is generally agreed that a waiting period of two to three months should precede attempted repair of the fistula, in order to allow for regression of oedema and infection around the fistulous orifice. Since the chances for a successful result are greatest with the first attempt, this prerequisite should be met.

4. The principal consideration at operation is adequate exposure of the fistulous tract and its complete excision with mobilization of the bladder wall and accurate apposition of the bladder edges without tension. Whilst the fistula may appear small endoscopically, the defect in the bladder wall increases considerably when the tract is completely exposed and removed. It is for this reason that we feel that closure can be effected more readily, and with much less tension, by bisecting the bladder wall down to the site of the opening rather than by simply undercutting the edges of the fistula and suturing the circular defect transversely.

Where there is a fistulous tract in the lower half of the vagina, such as one sees after obstetrical injuries and some vaginal plastic procedures, the vaginal route may provide an easy access and mobilization of the defect. However, if the tract leads from the upper vagina to the retrotrigonal area, as is noted after total abdominal hysterectomy, we strongly favour the suprapubic route with extraperitoneal dissection of the bladder and bisection of the bladder wall down to and surrounding the fistula.

5. Continuous and effective postoperative drainage for 12 to 14 days by suprapubic tube without a Foley catheter should be carried out in order to allow for good solid healing of the bladder.

6. Postoperative prophylactic administration of antibiotics should be instituted.

Technique of Operations

With the patient in a lithotomy position, cystoscopic examination of the bladder is carried out with the insertion of catheters in both ureters. The fistulous site and size are accurately determined, and particular note is made of its relationship to the ureteral orifices. The vagina is then lavaged and packing is firmly inserted in that situation. Then with the patient in a moderate Trendelenburg position a midline suprapubic incision is employed, generally excising the previous suprapubic scar, and the bladder is brought into view. The urachus is then isolated, clamped and cut. (Fig. 3).

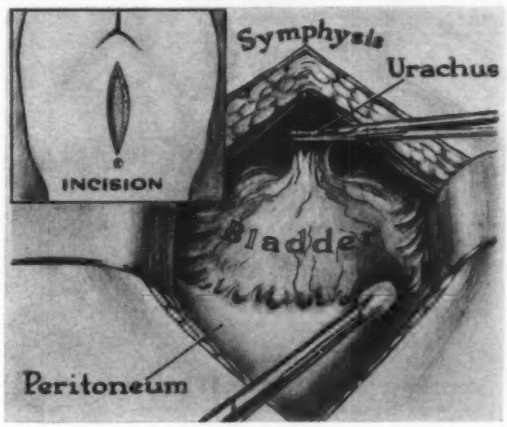

Figure 3

The lateral aspects of the bladder are freed, after which a dissection of the posterior wall of the bladder is carried out down to the vesicovaginal fistula. (Fig. 4). This may be accomplished sometimes without entering the peritoneal cavity, but a peritoneal tear may readily occur at the site of the

Figure 4

attachment of peritoneum to bladder. This is easily closed by suture. An incision into the dome of the bladder is made and with the help of retractors, an inspection of the fistulous tract is carried out. (Fig. 5). A probe is inserted therein. The posterior wall

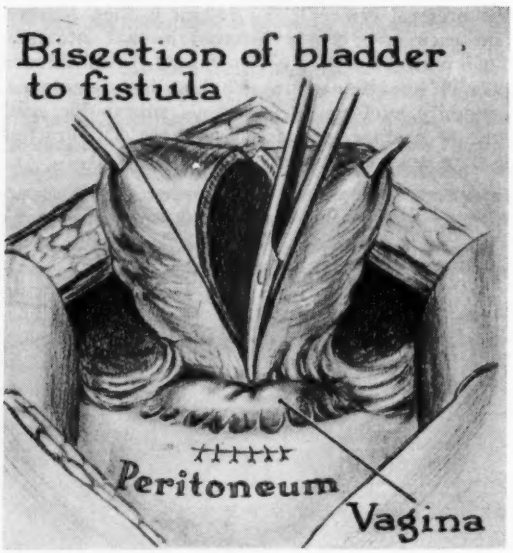

Figure 5

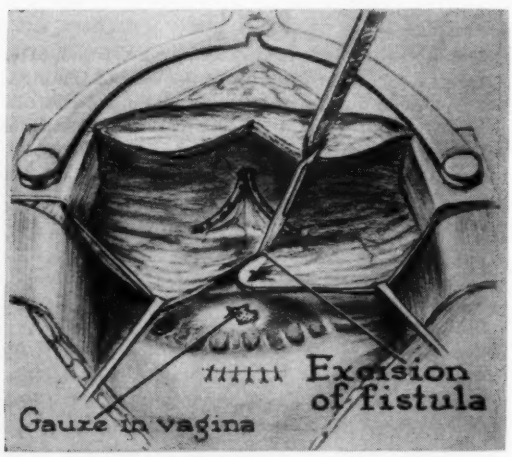

Figure 6

of the bladder is then divided down to the fistulous opening and the latter completely excised. A bistoury knife is employed to excise the thickened fibrotic walls of the fistula. (Fig. 6). The bladder wall is then mobilized with meticulous care to avoid ureteral injury. The bladder wall is separated from the vagina sufficiently to allow ready closure of each separately. (Fig. 7). The edges of the vaginal orifices are then freshened and the lat-

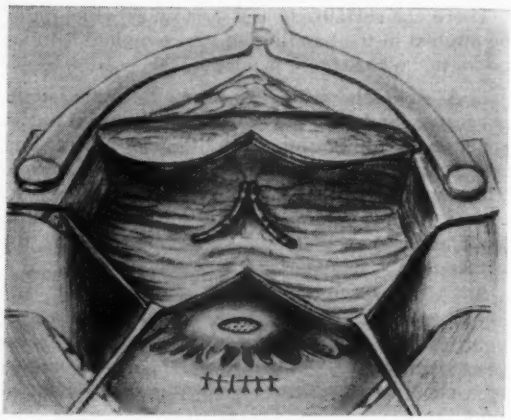

Figure 7

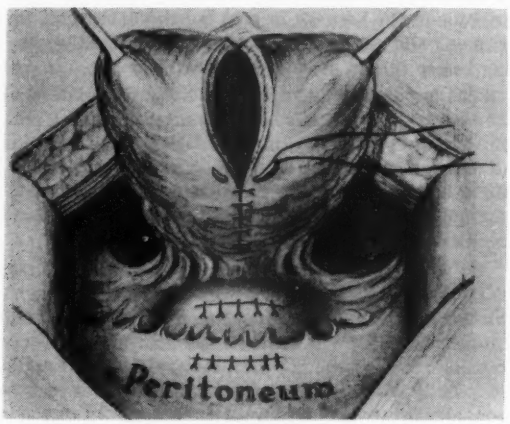

Figure 8

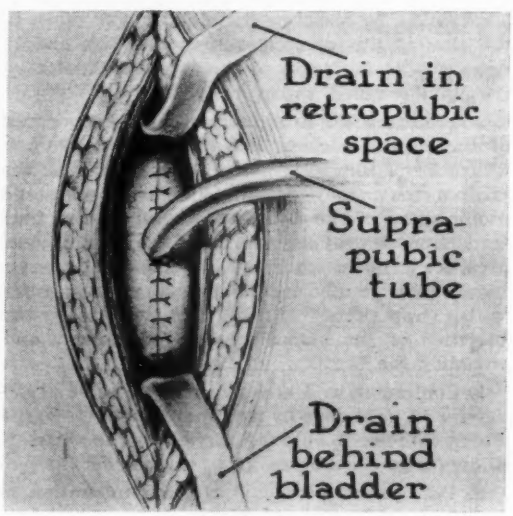

Figure 9

ter closed with interrupted sutures of 00 chromic catgut transversely, everting the mucosa into the vagina. The bladder edges are then sutured from below upward, placing interrupted 00 chromic catgut sutures through the muscular wall only. (Fig. 8). A second reinforcing layer of sutures is then inserted through the lower portion of the bladder incision. This closure must be effected without tension. A layer of interrupted 000 plain catgut sutures is then placed through the mucosal layer of bladder edges only in the lowermost portion of the bladder, to approximate the edges. The bladder wall is then closed around a 30F de Pezzer tube. Penrose drains are placed in the retropubic and retrovesical spaces and the wound is closed in layers. (Fig. 9). In two of our cases a 24F Foley indwelling catheter was left at the time of operation, but it is now considered unnecessary to utilize this added drainage measure.

Postoperative Care

The importance of continuous drainage without clamping of the suprapubic tube need hardly be stressed. The patient is placed on antibiotic and supportive intravenous therapy and is allowed out of bed in 48 to 72 hours. The suprapubic tube is left in place for 14 days, after which a Foley catheter is inserted per urethram and left inlying for approximately five days or until the suprapubic sinus appears well healed.

Our series consists of 12 cases, one of which was performed in association with Dr. L. Schlesinger at the Physicians Hospital, Plattsburg, N.Y. Complete healing of the fistula was obtained in all our cases after the first operative attempt. The patients ranged in age from 41 to 49. Most of our cases followed total abdominal hysterectomy. In two instances the bladder was inadvertently opened at the time of the hysterectomy and immediately sutured. Urinary leakage commenced from 4 to 12 days postoperatively. The fistulous opening measured from 0.5 to 3 cm. in diameter, and was generally situated at or just above the interureteric ridge. In the first case, there were two openings above the interureteric ridge which were joined at the time of operation. The repair was carried out at an interval of from 7 to 10 weeks after development of the fistula, the preliminary preparations consisting of antibiotic therapy and vesical lavage, as noted before. Cystoscopic assurance of a healthy fistulous tract was obtained in all cases before operation.

Bramhall and Marshall reported 13 cases of vesicovaginal fistula resulting from pelvic surgery which were repaired by a similar extraperitoneal technique with only one failure. Eleven cases followed complete hysterectomy, and in each of these the fistula occurred in the scar at the vault of the vagina. In their postoperative care the patient was maintained in a prone position for 14 days with combined urethral and suprapubic drainage. O'Conor and Sokol utilized this method successfully in 9 out of 11 cases, many of which had had previous unsuccessful attempts at repair. Sargent and Marquardt have also reported uniformly successful results in 22 cases of vesicovaginal fistulae treated in this fashion.

Discussion of Methods of Repair

The principal avenues of approach to the repair of vesicovaginal fistula are by the vaginal or suprapubic route. Cases have been reported of spontaneous closure of the fistula with catheter drainage, but these are exceedingly rare. Falk and Orkin have recently reported on the successful closure of small vesicovaginal fistulae, i.e. less than 3 mm. in diameter, by electrocoagulation of the fistula followed by indwelling catheter and postural drainage. Collins and Jones have used a preoperative course of cortisone with antibiotics in order to allow for earlier operative closure by obtaining a clean fistulous tract more rapidly.

The vaginal approach appears to have its principal merit in those cases where accessibility in the lower half of the vagina allows for proper exposure and mobilization of the bladder opening. Moir's report of 100 cases of consecutive vesicovaginal fistula repaired from below is impressive in that 75% of his cases had a previous attempt at surgical care and the fistula was closed in all cases by his vaginal repair. His proficiency in these cases has unfortunately not been obtained by most surgeons, as attested by the number of cases requiring repeated operation for successful closure. It should be noted too that the site of the fistula gives no certain indication of the case of the repair or anticipated success, since some of the large fistulae are easily closed, whereas some of the small ones may be difficult to repair.

At present suprapubic transvesical approach is being utilized mainly by urologists and gynaecologists, and is principally indicated in the fistula located high in the vault of the vagina. It is felt that the effectiveness of this repair can be enhanced by bisection of the bladder down to the fistula as described in the technique employed by us. The co-operative efforts of the gynaecologist and the urologist in the handling of these cases has been found of great value in assuring a successful result.

Legueu has described a transperitoneal approach to the vesicovaginal fistula situated high in the vagina, which however carries with it the risk of peritoneal irritation from urinary leakage, either at the time of operation or subsequently.

Where the vesicovaginal fistula results from tumour infiltration or extensive irradiation necrosis, ureteral diversion by an ileal loop implantation may be indicated. This has been employed by us in one case not included in our series, where carcinoma of the cervix had infiltrated the bladder cavity.

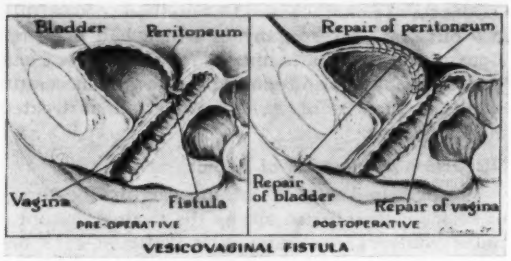

Figure 10

Anatomical relationships pre- and post-operatively in a typical case.

Summary

A method of repair of vesicovaginal fistula has been presented, utilizing the principle of extraperitoneal dissection of the bladder with bisection down to the fistulous tract and excision of the latter.

This method appears to fulfil the cardinal principles of plastic surgery in allowing for proper exposure and mobilization of the bladder wall, with accurate approximation of cut edges without tension.

Results with this method have been extremely gratifying, the fistula being healed at the first operative repair.

Medicine

Current Thoughts in Neurology

R. T. Ross, M.D.

Retrobulbar Neuritis

A recent survey of United States military personnel who suffered from retrobulbar neuritis fifteen to twenty years earlier has shown an incidence of full blown multiple sclerosis in about 11% in the interval. The old idea that retrobulbar neuritis was followed by other manifestations of multiple sclerosis in 50 - 75% of patients appears to be incorrect. There is increasing evidence that large doses of intravenous ACTH may shorten the course of retrobulbar neuritis and possibly reduce the incidence of subsequent optic atrophy. There are now a large group of patients who have been relieved of their pain on eye movement within forty-eight hours of starting ACTH and a sufficient number who have then had their medication stopped for various reasons with a prompt return of pain to suggest that this medication may have some truly beneficial action.

Demyelinating Diseases

The myelin sheath continues to be the object of intensive investigations, and it is now proven that the myelin sheath is composed of concentric layers of protein alternated with layers of lipid. It has also been demonstrated that sheaths of oligodendroglial plasma encircle the axis cylinders in the central nervous system. It is suggested that the enigmatic oligodendrogliocyte may be important in the formation and maintenance of myelin. Thus the study of demyelinating diseases may become the study of the oligodendrocyte.

A recent clinical research project gives a detailed account of the effort of lowering body temperature to ninety-six or ninety-five degrees in patients with multiple sclerosis. For the period of cooling there was a marked and objective amelioration in physical signs. Such things as transient shrinkage of central scotomata, disappearance of intention tremor, and reduction of dysarthria and spasticity occurred during the period of cooling. The signs returned with the return of normal body temperature. All of this suggests that perhaps we haven't any idea of the function of myelin.

Tolbutamide has entered the therapeutic arena as the most recent agent in the treatment of multiple sclerosis. Within four weeks of a report of its use in multiple sclerosis in a widely-read American journal the same journal published a paper on its use in the treatment of paralysis agitans. Ah chaos!

The Guillain-Barre Syndrome

Case reports of this syndrome continue to appear in the literature and have recently included a group of children affected with the disease, the youngest patient being thirty-four months of age.

There are at least five proven cases in the literature of the syndrome in association with systemic lupus erythematosus.

In one case there appeared to be some improvement in the neuropathy as the systemic lupus ameliorated.

Other case reports of the Guillain-Barre syndrome in association with influenza A (Asian strain) have appeared. The autopsy findings in these patients reveal far more medullary and mid-brain demyelination and neuronal degeneration than is usually seen in fatal cases of the idiopathic neuropathy. Clinically these patients had influenza virus isolated from lung tissues and cerebro-spinal fluid. Their neurological picture was one of a neuroradiculitis, elevated C.S.F. protein with an added encephalitis. It is reasonable to say, in contrast to the above, that most cases of the Guillain-Barre syndrome are unrelated to any known virus infection and that agglutination and virus isolated studies generally prove fruitless.

Neurologic Syndromes in Association with Malignancy

A. Neuromyopathy

There are more and more reports of neuromyopathies in association with different kinds of

carcinoma. Hodgkin's disease and the lymphomas have been added to the group. The common clinical presentation is of subacute onset of proximal leg weakness, difficulty in climbing stairs, etc., followed by ataxia, paraesthesiae in all limbs and eventually weakness in the arms. On examination there is usually weakness, wasting, areflexia, muscle tenderness (and pain) and little or no corroborative evidence of a sensory defect. Whether the lesion is mostly peripheral nerve or mostly muscle depends on one's point of view. The debate wages on in the literature.

Surgical removal of the carcinoma has no effect on the neuropathy; secondaries are not significant in the etiology of the syndrome, and the neurological picture may appear after the apparently successful removal of the cancer. The etiology is unknown but current thinking is that the carcinoma and the peripheral nerve (and/or muscle) are in competition for some metabolic substrate with the nervous system coming off second best.

B. Cerebellar Degeneration

This is another, and fortunately less common "at a distance" complication of carcinoma. The cerebellar syndrome is generally subacute but may be very rapid in its course. The signs and symptoms consist of ataxia, dysarthria, vertigo, diplopia and nystagmus. Dementia may be an associated symptom. This has been reported most frequently with carcinoma of the lung (without metastases) and the cerebellar syndrome may anticipate the diagnosis of bronchial carcinoma by one or even two years. The cerebellar disorder and the neuromyopathy have been reported in the same patient, coming on simultaneously some eighteen months prior to the appearance of a bronchogenic carcinoma.

C. There are other case reports of dementia alone in conjunction with occult carcinoma as well as the more conventional sensory-motor type of peripheral neuritis.

Phenothiozine Tranquilizers

A number of syndromes occurring in children and to a lesser extent in adults have appeared since "Compazine" and similar drugs have been introduced. These consist of extrapyramidal and postural abnormalities as well as a syndrome of drowsiness and prolonged muscular spasm. Oculogyric crises, opisthotonus, torticollis, trismus and extensor spasms of the limbs have all been reported after using the drug. In addition there are case reports of generalized body rigidity and aphonia with aphagia after either the phenothiozine group of drugs or the chlorpromazine group. These untoward effects may appear after a single normal dose, several days or weeks of normal dosage or after excessive doses. The syndrome is self-limiting and requires no treatment but is important to the extent that it can mimic encephalitis, tetanus and meningitis.

Wilson's Disease

Hepatolenticular degeneration (Wilson's Disease) is apparently treatable with penicillamine orally or intramuscularly as effectively as it was with British Anti-Lewisite. The effectiveness of penicillamine as a chelating agent is by virtue of its sulfhydryl group and adjacent carboxyl and amino groups. The oral administration of this drug produces a marked excretion of urinary copper and usually a concomitant clinical improvement.

Cerebral Arteriosclerosis

With the more widespread use of carotid arteriography it has become evident that "cerebral" atheroma is most marked in three places, two of which are extracranial. These are the origin of the internal carotid, the origin of the vertebral and in the middle cerebral. In a surprising number of patients the disease is largely or entirely extracranial. It is still far from being decided whether surgical treatment or long term anti-coagulation or either will give the best long term results.

The immediate surgical results are best when the artery is stenosed and poorest when it is occluded. In about 25% of internal carotid artery stenosis a murmur may be heard in the neck. Palpation of the artery is unreliable and ophthalamodynomometry is of little value. The latter is particularly so if the external carotid circulation through the eye is good. The surgery of partial occlusion is prophylactic and involves hypothermia or a temporary shunt. Of the various procedures being used thromboendarterectomy seems the easiest and most useful.

Before one can conclusively comment on the surgical treatment of carotid and vertebral artery stenosis, we will need a series of cases treated over a long period with anti-coagulants.

Diabetes

Diabetes — 1960

A. G. Rogers, M.D.

This brief review of diabetes is not exhaustive. Clinical subjects are emphasized. For those desirous of a more thorough recent review, the last few years' issues of the journal Diabetes are recommended.

Principles of Diabetic Care

T. Danowski describes the diabetic spectrum, from pre-diabetes, to latent diabetes, to the simplest form of manifest diabetes, to the obvious diabetes, to the mildly ketotic diabetes, to acidosis coma (mild) and to acidosis coma (severe). Insulin is not a necessity in the milder forms of diabetes, detectable only by strenuous glucose loading. It is a necessity in patients with ketosis and with mild and severe coma. The oral hypoglycemic agents may be tried in latent diabetes, and in manifest and obvious diabetes. Ketonuria and Ketonemia during such trials mean that insulin should be used, and that the oral hypoglycemic agents should be discontinued. (Diabetes 9: 292, 1960).

The oral hypoglycemic agents in common use are the sulfonylureas and the diguanadines. Of the former, tolbutamide is the safest. Chlorpropamide may give severe hypoglycemic shock (J.A.M.A., 170: 941, 1959). Jaundice and exfoliative dermatitis may occur. Bondy feels that even if such reactions are rare, they are much too common to justify the use of a medicine for which there are adequate non-toxic substitutes (tolbutamide and insulin). Phenethylbiguanadine (DBI) not infrequently has to be discontinued because of gastro-intestinal symptoms. No organ toxicity has been observed in patients for periods up to two years. (J.M.A. 171: 252, 1959). Toxic nephrosis has been observed in rabbits on D.B.I. (Diabetes 9: 118, 1960).

Secondary failures are not uncommon with oral hypoglycemic agents. Secondary resistance or failure may be due to a reversible failure of the beta cells in the pancreas. (Acta. Med. Scand. 161: 251, 1958). The patient should follow his diet. Too often oral hypoglycemic agents are used without dietary control of obesity. Adequate weight reduction will often give a better result than the use of these agents without weight reduction.

It is stated that, if tolbutamide is to prove useful, the blood sugar should be normal four hours, after three grams of the drug by mouth. (J.A.M.A. 167: 818, 1958).

Pre-Diabetes

This can be defined as that time before which the patient becomes plainly and clinically diabetic. This is a latent abnormality that may reveal itself under certain specific conditions. It should be suspected in mothers (and fathers) of overweight newborns, particularly if there is a history of a late fetal or neonatal death. It can be almost assured that the mother is diabetic or pre-diabetic if the islets of langerhans are enlarged in the stillborn fetus. Pre-diabetes should also be looked for in the females with pre-menopausal angina, patients with repeated pancreatitis, and in those with a family history of diabetes. (Diabetes 9: 373, 1960).

Diagnosis of Diabetes

The repeated findings of a definite increase in fasting or non-fasting blood glucose values allows the diagnosis of diabetes to be made. In patients with border-line values, glucose tolerance tests should be used. Augmented glucose tolerance tests, with use of cortisone or prednisone, are still under investigation. The interpretation of the results may be difficult, and their routine use is not justified. One might mention that all too often reliance is placed on the fasting morning urine as a screening specimen for glycosuria. A specimen after a large meal is a far better specimen for this purpose.

Adequate Control of Diabetes and Late Complications

Danowski states "that in our present state of ignorance no promise can be made that a virtuous life in terms of adherence to an ideal regimen will carry the reward of freedom from vascular disease." There is, however, strong evidence that good control of diabetes delays the devlopment of late diabetic manifestations (S. Johnson — Retinopathy and Nephropathy in Diabetes Mellitus — Comparison of the Effects of Two Forms of Treatment — Diabetes 9: 1, 1960). As long as the etiological factor remains unknown, the only thing we can do to delay late complications of diabetes is to try and control carbohydrate metabolism as carefully as possible. This is particularly true in juvenile diabetes. Root et al (J.A.M.A., 169: 903, 1959) also stress that the postponement or prevention of proliferative retinopathy is possible by intensified efforts to find diabetes early and to provide for its continuous adequate treatment by skillful use of insulin and of dietary measures.

Vascular Lesions and Diabetes

White points out that careful study emphasizes the potentially reversible character of some vascular lesions. Rapid reversal of venular dilatation, microaneurysms, hemorrhages and waxy exudates may occur. (Diabetes 9, 345, 1960). Pope presents a concept of pathogenesis of retinal capillary microaneurysms (Diabetes 9, 9, 1960). He suggests that microaneurysms are instituted by accumulation of fat into the capillary wall, with subsequent stretching so that it herniates through the supporting reticulum network. A minute aneurysm then develops by this herniation between reticulum fibers.

Landau describes the small blood vessels of the conjunctiva and nailbed in diabetes (Lancet 2, 731, October 1960). The basic diabetic lesion of capillary congestion on the venous side has been noted in the nailbed and conjunctiva. An arteriosclerotic pattern of the small vessels of the conjunctiva was common, as was severe capillary narrowing. A high pressure in the terminal digital vessels was common. The incidence of conjunctival micropools (Microaneurysms) was 25%, only slightly higher than in arteriosclerosis, and no commoner than in hypertension. The author concludes that diabetes was associated with characteristic but not pathognomonic changes in the small blood vessels of the conjunctiva and nailbed. In one series, a study of amputation specimens was made. It was noted that gangrene may appear in diabetics without complete occlusion of one of the main arteries. Patchy gangrene of the skin, or of only one or several toes is frequently seen in diabetics, while massive gangrene of the lower limb is more characteristic in peripheral vascular disease in non-diabetics. (Diabetes, 8: 261, 1959).

Lipids in Diabetes

Adlersberg and Eisler reported on circulating lipids in diabetes (J.A.M.A., 170: 1261, 1959). Patients with normal blood sugars, without vascular complications had lipid levels that did not differ from non-diabetic controls. Patients with elevated blood sugars, without manifest vascular complications had elevated fatty acids, triglyceride, and total lipids, with normal serum cholesterol and phospholipids. In patients with vascular complications and elevated blood glucose, the circulating lipids were most abnormal of all these groups. This study suggests that proper management of diabetes should include maintenance of normal values of circulating lipids, especially fatty acids and triglycerides. It also suggests that even in the presence of overt vascular complications, good control of carbohydrate metabolism may mitigate the derangement in circulating lipids. This again emphasizes the importance of adequate control of diabetes in helping to delay and prevent late complications.

Danowski points out that yearly assessment of lipids, E K G, renal function, evaluation of the peripheral vascular system, chest x-ray, vibration sense perception, and fundoscopic examination are indicated.

Infections and Diabetes

26% of diabetics had positive urine cultures, with gram negative organisms, particularly E. coli, being predominant. This high incidence of bacteruria is a particularly strong argument for the avoidance of unnecessary, genito-urinary instrumentation, as many of these bacterurias followed such instrumentation. (N. Engl. J. Med., 261: 1213, 1959). The frequency of bacteremia caused by gram negative bacilli was high in diabetics. The urinary tract was the portal of entry in the great majority of such bacteremias. (Am. Int. Med., 100: 214, 1959). Such reports accentuate the dangers of indiscriminate G-U instrumentation of diabetics. Unfortunately, one still sees diabetics who are catheterized to obtain a urinalysis specimen for glycosuria.

Other Drugs and Diabetes

Aspirin may lower blood sugar, and has been used to treat diabetes. (Diabetes, 9: 392, 1960).

Thiazide derivatives may make the control of the diabetic more difficult. (N. Eng. J. Med., 262: 403, 1960).

Diabetes and Pregnancy

In one series, 147 diabetic women had 157 pregnancies. The perinatal mortality was 19%, with stricter control it was 13%. Carbohydrate tolerance was usually decreased in the last trimester, and regular insulin, in three to four doses daily was used in the third trimester. Malformations occurred in 6½%. In another series the authors point out that hospitalization should be considered when the patient reaches 30 to 34 weeks. Primigravidal with severe diabetes are delivered by Caesarean section (G.P. 19: 109, 1959). The incidence of diabetes in the offspring of diabetic fathers was 2% and 8% for diabetic mothers (white). She also found that the incidence of anomalies in 556 viable infants of juvenile diabetics was 9%. The exact influence of oxygen deprivation in the electively premature infant, often struggling for survival in the neonatal period, requires further investigation. In another series (Arch. Dis. Childhood, 34: 312, 1959) the neonatal mortality was substantially higher in spontaneous deliveries, as compared to those in which pregnancy was terminated by induction or by caesarean section. The incidence of congenital anomalies was 13% in the live births of diabetic mothers compared to 3% in a non-diabetic group, cardio-vascular anomalies accounting for one half of the total. Hypoglycemia in newborn of diabetic mothers is frequently unsought. Worm administers routine glucose to the newborn of diabetic mothers until the absence of hypoglycemia is noted.

Psychiatry

Psychiatry in General Practice*

George C. Sisler, M.D., F.R.C.P. (C)†

This paper constitutes a brief outline of some of the problems arising in the diagnosis, treatment and referral of emotionally disturbed patients by the General Practitioner.

It is seldom in dealing with patients with emotional disorders that one has the satisfaction of making a single "diagnosis" that represents a disease entirely due to one particular etiological factor, and which adequately describes the patient's illness.

More usually an accurate and useful psychiatric diagnosis requires a descriptive paragraph rather than a word. "Depression," "Schizophrenia," "Psychogenic Dermatitis" and so on through the list, though useful general categorizations, actually tell us little about the patient's real problem and do scant justice to the unique aspects and subtleties of illness.

What one aims at rather, is a comprehensive organic, psychological, and social diagnostic formulation that outlines the relative importance of various causative factors in these three spheres and suggests a treatment approach.

In arriving at a diagnosis the medical history is by far our most useful instrument. This of course applies to most illnesses but particularly is true in regard for the emotional and social aspects of disease. The physical exam and laboratory tests should be considered as only a means of supporting, modifying, or refuting the formulation arrived at on the basis of the history. There is nothing unique about a "psychiatric history." It is simply an ordinary medical history which emphasizes the emotional and social aspects of enquiry.

Since diagnosing and treating emotional disorder satisfactorily necessitates knowing the person who is ill, the General Practitioner is obviously in a particularly favourable position since he as a rule has followed the patient and his family through illness, confinements and bereavements, and knows the social and emotional matrix in which he functions. A headache, an episode of anxiety, a new pain, all can be a diagnostic puzzle after a dozen tests to someone who does not know the patient's background; but such a symptom may be readily understandable to the family doctor who knows about his personality, habits, strengths and weaknesses and his usual ways of reacting to stress. Thus the General Practitioner who is really able to get to know his patients as people is in a favourable diagnostic position.

If the patient is agreeable (and he almost always is if the matter is approached tactfully) a brief historical interview with a close relative often assists greatly in diagnosis. This is especially true in those patients with severe emotional disorders who are too depressed, anxious, confused or suspicious to give an accurate account of their history and symptoms. One must at the same time recognize the limitations of such a collateral history. The relative may have his own fixed but erroneous ideas regarding the patient's illness. Despite these limitations, time spent talking to a relative is usually very rewarding.

A direct examination of the patient's mental status, though important, is too often neglected for fear of embarrassing or antagonizing him. For those in whom an organic cerebral dysfunction is suspected, it is important to test the memory and orientation and to record this. Further, it is necessary to ask the emotionally upset patient tactfully but directly about his mood, anxieties, pre-occupations, sexual adjustment, ideas of suicide and so on if his general remarks or speech and attitude cause suspicion of trouble in these areas. Sometimes when we omit asking patients about these things it is we ourselves who wish to avoid the embarrassing and troublesome topics. Further, even if the patient avoids giving an answer to some questions in these sensitive areas, we at least have indicated to him that we know he may have problems of this sort and thus have left the way open for him to bring the topic up again in the future when he feels able to be more frank.

Be wary of the "presenting complaint." Of course, some patients do tell us immediately what they believe to be their problem. (And sometimes they also tell us what they believe should be done about it). Many times, however, the presenting complaint is used simply as a way of introducing himself to us. I am not now speaking of the patient who has unconscious problems of which he is unaware, but of the one who is really concerned about his insomnia, his anxiety feelings, his relationship with his adolescent boy, his sexual life, etc., but who says initially, "I just thought it was time for a check-up," or "This rash on my foot is bothering me." He uses these complaints that refer to conditions that do not concern him simply to introduce himself to the doctor. Whether he ever gets around to talking about his real trouble depends on many things and particularly on how confident he is of a sympathetic hearing. If the doctor in a brief interview, only dwells on the specific presenting complaint there may be no opportunity to talk about the more important problems. It is wise to be like the salesman who asks after the initial purchase, "Is there anything else you would like?"

*From an address to the Manitoba Chapter of the College of General Practice, May 5th, 1960.

†Department of Psychiatry, Faculty of Medicine, University of Manitoba.

Occult Depression. Most physicians are familiar with the usual symptoms of both mild and severe emotional depression. However, the obvious gloomy pessimistic mood and dejected facies that are the hallmark of a depression need not be the presenting symptom. The complaint may be only of insomnia, or loss of libido or "I'm tired" or "I can't think clearly" or "Food doesn't taste" or merely, "I don't feel right." The depression may present with headache, back pain, constipation or almost any somatic symptom. The patient may have real difficulty in describing just how he feels ill, and may be at a loss to find a discrete complaint and thus will talk about these somatic symptoms simply because they are concrete and can be described. The significance of such vague symptoms can only be determined by an adequate history and examination and are of the general sort that may indicate any of a number of organic as well as psychological causes. However, given such complaints one should always have depression in mind as a distinct possibility.

One must recognize that all the features of this disorder may not be present in a given case and paradoxically, some depressed people appear happy. This is not as nonsensical as it may sound—the patient with a "smiling depression" who covers deep despondency with a superficial automatic smile and strained attempts at humour can be diagnosed by asking direct questions about the underlying mood.

In regard to treatment, it is essential for the depressed patient that the doctor maintain contact with him. Though this is true of illness in general, it is imperative in depressions. Having examined and set out a treatment plan for even a mildly depressive patient, one must make another definite appointment to see him and give the specific assurance that he will be followed. Further, the patient must know that, if the symptoms do not improve or worsen, there are other treatments available. Also, assure the patient that you want to hear from him if he feels worse before the next appointment. The depressed patient is not one who can be seen, diagnosed, have a talk and be given reassurance or some medication and then dismissed. He must have the confidence of your continuing interest and treatment efforts as long as he is ill. Beneath the depressive mask are often feelings of guilt and hopelessness and failure. Without your meaning to convey this, a simple assessment, prescription, and dismissal may be taken to mean that this is all that can be done about the problem. Such an idea, may, on the background of a depressed mood give impetus to suicidal ideas when the symptoms worsen.

"Anti-hysteria." The psychological sophistication of some persons in our society is such that given a symptom such as indigestion, or headache, or fainting, they assume that this is evidence of the physiological effect of an emotional upset, a psychosomatic disorder. Often of course, they are correct, but it is for the doctor to make the differential diagnosis and assess the significance of possible organic causative factors. Some of these patients really believe that indigestion is evidence of only a nervous upset. Others have a fear that they may have some serious illness (cancer for instance) but they do not mention this, and talk of emotional factors in the magic belief that "if you don't mention it, it won't hurt you." In both cases the doctor must initially at least lead the patient's discussion of his symptoms away from an exclusive preoccupation with his psyche and perhaps persuade him reluctantly to have lab. tests or x-rays. Don't let the psychologically minded patient lead you astray with complicated psychodynamic formulations of his own problem.

The Aged. There is a common assumption that the only psychiatric disorder seen in the aged is an organic confusional state secondary to atherosclerosis. This is not so. Any type of psychiatric syndrome may occur, but there are a few facts worth noting particularly:

1. Psychoneurosis rarely appears for the first time in old age. If symptoms of anxiety, fears, and hypochondriacal complaints that seem neurotic do appear, think of a depression or an organic psychosis as the most likely underlying condition.

2. The differentiation between a depression and an organic psychosis is not always as easy as it appears from the text book. A careful testing of the memory and the ability to retain and recall recently-learned facts may be necessary. In many cases psychiatric referral is indicated since in the aged, symptoms such as social withdrawal confusion in dealing with the environment, and even poor memory may be the result of a depressed mood that will respond to electro-shock therapy.

3. A severe depression is a serious and even a dangerous disease at any age, but this is particularly so in the elderly. This is because the secondary effect of agitation, insomnia and anorexia can so often lead to rapid debility, and also the socially isolated old person (particularly the old man) who has disintegrating family ties, or no ties at all, is our greatest suicide risk.

Sociopathic Behaviour. Though few in number, these patients are one of the greatest sources of frustration to the general practitioner and also in many cases to the psychiatrist. They are unreliable, aggressive, unstable in their work habits, drink too much, get into unrewarding quarrels and conflicts and so on. Usually they bring their problems to the doctor rather reluctantly at someone else's urging and carry on their unreliability and hostility in their relations with the doctor. They may even try to use us to get out of a scrape or to protect themselves from some deserved retribution. They are hard to like and we don't have to like them. However, they are ill and they need our help and we have an obligation to try. If we can, we must

give them suggestions about how their problem can be helped. However, at the same time, it is necessary to indicate that such help is predicated on their making real efforts to alter their behaviour. This sometimes seems a circular and illogical process — for example to say to the alcoholic after taking his history and examining him "I will try to help you with your problem, but in order for me to do this you must stop drinking." However, it is often necessary to do just this — to say "you must stop, then I will do my best to help you with your anxieties by talking them through, using tranquillizers and so on." It may be hard not to be angry when such a patient lets you down, but it is much more helpful to be calm and understanding, because if you do show anger, this permits him to be angry with you and in his mind to justify his rebellious behaviour. Rather a simple, sincere but firm statement—"I want to help you and understand that you need this, but regret that I can't unless and until you are really enough concerned about the matter to make a start at controlling your own behaviour." This may result in the patient rejecting you and perhaps moving to some other doctor. Nevertheless, a firm but kindly expectation of co-operation from such a patient can be rewarding both to you and to him later on. With the previous unsuccessful consultation in mind, he may return months or years later, older, wiser and perhaps having had more and more failures and social rebuffs, but now willing to co-operate in treatment.

Psychiatric Referral

It is difficult to make useful generalizations about psychiatric referral. It depends on many factors—most particularly the practitioner's competence in dealing with psychiatric problems and the availability of consultation. As in other aspects of medicine, general practitioners vary in their competence and interest in dealing with particular types of illness. "Competence and interest" are related to some extent I am sure. This is not surprising, since any survey, for example one of M.M.S. practices, shows that some General Practitioners refer to specialists comparatively many surgical cases, or skin cases, or obstetrics cases or pediatric problems and so on. The general rules that apply in all referrals thus apply to psychiatric problems. Also you refer for two reasons—either for a confirmation or criticism of your diagnosis and treatment plan or to have the specialist take over the treatment of the illness. Some of you will want the specialist to take over many of your cases — others will usually want only an opinion and assistance. There is a scarcity of psychiatrists in Manitoba (and none outside of Winnipeg, Selkirk, Portage and Brandon). There are none at all in private practice outside Winnipeg. This makes is necessary for you to treat many cases that you might otherwise refer. Those that practice outside of the centres I mentioned know only too well the problems of referring a patient to a specialist a long distance away, since it is then for geographic reasons not feasible to have him follow the case for any period of time.

Though there are real defects in attempting to make general rules, it may be worthwhile attempting a listing of the kinds of cases who should be referred to a psychiatrist at least for an opinion and in many cases for continuing treatment:

1. Any severe depression.

2. The less severe depression that you have seen a number of times and which is getting worse. There was noted previously the importance in treating the mild depression of indicating to the patient that other help is available (particularly other specialized help) if things get worse.

3. Those patients acutely psychotic from any cause—delirium, schizophrenia, maniac excitement and so on, particularly because hospital treatment in a psychiatric ward will almost always be necessary.

4. The patient with early schizophrenia even though he is not disturbing the environment to the point that hospital care is imperative. In many of these patients the florid symptoms of bizarre behaviour, hallucinations and so on are lacking and diagnosis as between an anxiety state, a depression and a schizophrenia may be very difficult. However, in these patients in addition to a shy introverted socially-inept personality, there is a vagueness, a talking around the subject, a woolliness of thinking that causes the doctor to end the interview with no real feeling that he has come to grips with the patient, and with often even no real awareness of the symptoms for which he seeks help. There may be bizarre somatic complaints — "my blood seems wrong," or "my bones and my back aren't the same" or simply "everything seems to be changing." These schizophrenic patients should be referred, though it is often difficult to persuade them that psychiatric consultation should be sought. A decision regarding treatment must be made and this may involve hospitalization.

In this regard one should emphasize the importance of telling the patient that it is a psychiatrist he will see. This may be put in less stark terms than just "you should see a psychiatrist" but the patient should know that it is regarding emotional factors in his illness that he is being referred. Otherwise, there often develops an initial hostility to the psychiatrist and to the referring doctor when the patient does find out about the true situation. This deception may destroy rapport and interfere with therapy.

5. One can be less definite concerning the patient with the behaviour problem. Since the only satisfactory therapy here is psychotherapy, and since some motivation to change is essential, the psychiatrist may have the same problems you have in helping these patients. However, even though this seldom leads to treatment by the psychiatrist a referral to him for assessment of your diagnosis

and treatment plan is usually worthwhile.

6. Finally there are the psychosomatic and psychoneurotic problems. Most of these do not require psychiatric referrel. As you well know, they form a considerable part of the practice of most family doctors and indeed emotional components colour all illnesses to a certain degree. These can usually be handled quite satisfactorily by the general practitioner if he is interested and will take the time. Severe psychiatric symptoms complicating an organic disease of course are indications for referral. Apart from this, referral usually is needed only to confirm your diagnosis and treatment plan or to investigate the advisability of more intensive psychotherapy than you wish to undertake yourself. I indicated that there is a good deal of variation in this regard — some of you will wish to conduct some psychotherapy in suitable cases and some will not. By and large the intelligent and well motivated person who is genuinely concerned about neurotic symptoms should be offered a series of psychotherapeutic interviews to explore his problem intensively and this can best be done by the psychiatrist.

Orthopedics

Hormonal Influences on the Skeleton

N. Roque, M.D.

The ultimate end of all endocrine activity is to maintain the constancy of the "milieu interieur" or to adjust the internal environment to the needs of the moment, by the action of hormones. As a regulator of endocrine activity, the pituitary gland holds the outstanding position of being the master gland. We are more concerned with the activity of the anterior lobe of the pituitary gland stimulating the adrenal cortex, the pancreas (diabetogenic hormone), the thyroid, the gonads, as well as somatic growth in general.

Under the influence of ACTH the adrenal cortex is stimulated to produce (1) gluco-corticoids, (2) mineralo-corticoids, and (3) androgenic or testoid compounds.

Thyrotropic hormone effects the BMR, growth, differentiation and metabolism through thyroxin. Similarly, the gonadotropins cause the ovary and testis to produce sex hormones which in turn influence growth and general metabolism.

All these hormones produced under the control of the anterior lobe of the pituitary gland act back on the anterior lobe to inhibit the formation of their corresponding hormones.

Aside from the influence on endocrine activity, the anterior lobe hormone also affects somatic growth in general, development of sex organs and certain metabolic processes. Its effects on bone and its growth are non-specific and more or less secondary to the fundamental actions of other hormones. ACTH is antagonistic to the growth hormone of the anterior pituitary. It retards chondrogenesis and osteogenesis in the epiphysis by the catabolic effect of the cortical steroids. Overdose of ACTH slows the growth of the epiphyseal cartilage and leads to retrogression of osteoblasts to the resting state, resulting in the decrease in amount and density of the metaphyseal spongy bone. Since ACTH leads to the suppression of formation of bone, it should cause atrophy of bone which could be the possible explanation of the osteoporosis in Cushing's Syndrome[1].

There is no proof, from the clinical point of view, whether growth hormones hasten or retard closure of the epiphysis, but as long as the growth apparatus is functional, it is responsive to the effects of the hormones. Somatotropic Hormone (STH) produced by the anterior lobe of the pituitary gland has actions and mechanisms which are not entirely understood experimentally, but it speeds somatic growth or perhaps prolongs growth period. In experimental animals STH re-established active endochondral bone growth after the enchondral plate had ossified, provided a residue of hyaline cartilage remained[1].

Li and Evans (1944) isolated pure growth hormone, the main action of which are retention of nitrogen and reactivation of cartilage cell division in the epiphysis of long bones of hypophysectomized animals, resulting in skeletal growth[2].

Housay and Young established the insulotrophic and diabetogenic action of pure growth hormone in adrenalectomized animals after an assessment of their diabetes. The exaggerated hypoglycemic response of the hypophysectomized dog to insulin was abolished by the growth hormone. This diabetogenic action of the pituitary is caused by the action of ACTH and growth hormone, or a substance which closely follows growth hormone during fractionation[3, 4].

Protein synthesis in response to growth hormone has been claimed to be dependent on the availability of extra insulin. According to several investigators, growth is induced by growth hormone as long as the supply of insulin is adequate; however, as soon as the pancreas fails to secrete insulin, growth ceases and diabetes develops[5, 6].

In summary, if the effects of excessive STH secretion begins before puberty, growth will be

balanced in all areas and result will be an exaggeration of the normal, since throughout adolescence certain epiphyseal centres close, unbalanced bone growth takes place, and the eventual product will be that of normal and abnormal bone growth. If the stimulus is applied after closure of all the epiphyseal centres the result will be acromegaly. If it stands continuously throughout adolescence and into adult life, the result is acromegaly superimposed on giantism[7].

In spite of the experimental evidence currently available, preparations of growth hormone have no anabolic protein action in man. This may be due to the contamination of the preparation with thyrotropin (TSH)[8]. What causes this effect? Causes of giantism could be any of the following:

1. Those due to excessive STH;
2. Those due to stimulation by other hormones elaborated by the eosinophilic cells;
3. Those due to the imbalance created by abnormal eosinophilic cell secretion and a deficiency of basophilic cell secretion because of basophilic cell destruction by the eosinophilic cell hyperplasia;
4. Those due to the space taking character of the lesion in the anterior pituitary lobe[7].

The Adrenal Cortex

The adrenal cortex has a wide variety of bodily functions. Removal of the gland or destruction by disease in patients, results in a gradual deterioration in vital physiologic processes and death. The adrenal cortical substances differ from one another qualitatively and quantitatively, but all are capable of replacing one or more functions of the adrenal cortex. These substances have the following properties:

a. An alpha B-unsaturated 3-ketone grouping in ring A;
b. A primary alpha-ketol side chain at C17;
c. An alcoholic or ketonic oxygen at C11 which confers gluconeogenic activity[9].

The ability of the various cortical steroids to cause growth varies, as desoxycorticosterone will restore to normal the rate of growth of adrenalectomized young rats, while corticosterone and cortisone do not have a favorable effect on growth in young rats[10]. Cortisone even retards growth in non-adrenalectomized immature rats, which led to the suggestion that the difference in growth is based on the maturity of animals used. Immature adrenalectomized rats, treated with cortisone, showed significant though subnormal growth, while adult adrenalectomized rats failed to respond when treated[11].

Storey (1957) has shown that administration of cortisone to rabbits is followed by rapid resorption of bone; and after its withdrawal, an equally rapid deposition of bone occurs, not only in the resorbed areas but on periosteal surfaces and within sutures. The continuous administration of cortisone leads to a general osteoporosis of the skeleton, whereas intermittent administration is associated with appositional growth and changes in the pattern on the bone structure[12]. The inhibition of bone growth by cortisone has been explained by its influence on the pituitary gland by way of change in the growth hormone. (Halmi and Barker[13]). The effect of cortisone withdrawal is in part due to a "rebound" phenomenon activating the endocrine system concerned with growth[14].

The main source of androgens is the adrenal cortex and also the testis. Excessive secretion of androgens by adrenal neoplasm or the testis augments skeletal growth which may exceed the normal growth by many inches; but with the earlier appearance of epiphyseal centres and premature epiphyseal closure the ultimate height may be well below that of a normal adult. Examples of these are pseudo-sexual precocity in girls from secretion of androgens by an adrenal tumor or virilizing ovarian tumor; and also true of sexual precocity with premature menstruation and breast development associated with an ovarian granulosa cell tumor, or bilateral cystic ovaries due to premature pituitary gonadotropic stimulus[15]. It is, therefore, safe to conclude that androgens augment skeletal growth, premature appearance of epiphyseal centres, and premature epithyseal union.

Nilevar is a brand of norethandrolone - 17 ethyl-17 hydroxy - 19 - nor 4 - androsten 3 - one. It is a single structure which belongs to the steroid class of drugs. According to the reports published it is an anabolic protein builder similar to androgen. Nilevar's androgen-like properties may have some effect on the epiphyseal centre and also has the advantages of non-masculinization of the subjects undergoing the therapy.

One of the chief causes of osteoporosis due to primary lack of bone matrix formation is a marked deficiency in secretion of estradiol; Albright has concluded that estrogens are a direct stimulant to osteoblastic activity and that decreased secretion is responsible for post-menopausal osteoporosis. Experiments conducted with the administration of estrogen exhibit the growth of spongy bone of the metaphysis into the marrow cavity by direct extension[1]. However, when large amounts of estrogens are being excreted in the urine during pregnancy, there is no alteration in the medullary bone formation in the fetal or maternal skeleton. Nor has it been possible to induce new bone formation by stimulating the animal's own ovaries by large doses of gonadotropic hormones, and estrogen implanted in the bones only shows the usual systemic effects with no special local reaction. Prolonged administration of estrogen gives a marked improvement in the state of well-being in general, nutrition and appearance, but without increased density of the bones demonstrable by x-ray. Meanwhile, there is a decrease in the urinary excretion of calcium and phosphorus and a fall in the serum phosphorus,

without any definite change in the urinary nitrogen or the serum alkaline phosphatase.

Gonadotropin or chorionic gonadotropin has effects similar to the anterior lobe of the pituitary gland. It stimulates growth during childhood and puberty, and hastens premature union of the epiphyses. These effects are attributed to the increased production of androgens. In hypogonadism associated with retarded growth, delayed union of the epiphysis, tendency to slender rather than stout bones, and weakness or laxity of ligaments appears to be caused biologically by defective secretion of androgens both testicular and adrenal. They also have a tendency of slipping and displacement of the head of the femur, especially when combined with adiposity[1]. Simpson in 1950 described a condition in boys (adipose gynandrism), and in girls (adipose gynism) associated with an increased growth and weight above the average, delayed sexual maturity, accelerated bone age and a wide pelvis, and considered it due to pituitary adrenal hyperfunction with excessive secretion of adrenal-estrogen, fat deposition factors and cortisone[15].

In carcinomata of the breast and the prostate with multiple metastases, relief has been obtained by the removal of the estrogen and androgen stimulus either by surgical or medical castration, not only on the primary growth but also on the metastases. Pain in the bones is relieved quickly after treatment with hormones has started, but radiological changes are usually not obvious for many months. Pathological fractures un-united for several months, may heal under the influence of testosterone. Unfortunately, there comes a time within a year or more when there is clinical relapse no matter how great the dosage of hormones[15].

Thyroxin

The two fundamental functions of the thyroid hormone are its effect on growth of the young animal, and its control of metabolism. It is well known that in cretins and in animals thyroidectomized during the growing period, growth is stunted. Ossification and union of the epiphyses are delayed. The younger the animal is at the time of thyroidectomy the more severe the results are, and treatment with thyroid causes normal growth if started soon, but not when the hormone administration is postponed for too long[1, 16].

The skeletal appearance in young thyroidectomized rats resembles those of hypophysectomized rats, in its small size, but the main difference is that the epiphyseal cartilages are not sealed by bony plates; some erosion continues, and the primary spongiosa retains its characteristic appearance[1].

Studies have been done regarding the synergistic action of the growth hormone and thyroxin. Young hypophysectomized rats treated with thyroxin have shown a slight increase in body weight and length, but are far more advanced in skeletal maturation than rats, thyroidectomized at birth and then treated with growth hormone preparations. The latter have exhibited a much smaller gain in body weight and size than the animals treated with thyroxin; and also they remained immature in appearance and skeletal development. From this experiment, it would seem that the pituitary is the more important factor for growth, and the thyroid is for organ and tissue maturation[17]. Treatment of hypophysectomized-thyroidectomized animals with pituitary and thyroid hormone have shown both increase in the skeletal growth, and organ and tissue maturation, suggesting a synergistic effect of the two hormones[18].

Overdosage of thyroxin in experimental animals leads to premature closure of the epiphyses and consequent cessation of growth. When thyroid is given to normal animals it may result in retardation of growth of the long bones as a result of the premature union of the epiphyses[1].

Thyroxin modifies metabolism of calcium causing the removal of calcium (with phosphorus) from bone, leading to osteoporosis. Unlike parathormone, it does not raise serum calcium, and increased calcium loss occurs in the feces and urine. This effect cannot be attributed to an increase in BMR because these changes do not occur in high fever. In thyrotoxicosis, there is marked increase in general metabolism. There is normal serum calcium and phosphorus with exaggerated excretion, the mechanism of which is unknown. With the exaggerated excretion, there is increased osteoclastic activity, and eventually the bones become so weak that spontaneous fractures occur.

Parathyroids

The parathyroid glands make only one hormone called "parathormone," which is controlled directly according to the needs of the tissue as reflected in the serum calcium level. There is the probability that an increased parathormone production may be brought about by an elevation in the level of serum phosphorus. Although the parathyroid glands affect the serum calcium level and probably the serum phosphorus level, the parathyroid hormone seems to be influenced only by the level of phosphorus in the body fluids. The effects of parathormone are as follows: (1) hyperphosphaturia; (2) hypophosphatemia; (3) hypercalcemia; and (4) hypercalciuria. This was confirmed in a man after the administration of this hormone[1], phosphorus diuresis starts within the first hour and continues for 2 - 3 days before an increase in calcium excretion[19]. The phosphorus diuresis could be due to the following mechanisms: (1) increase glomerular filtration rate of phosphorus; (2) decrease in tubular reabsorption; (3) change in the state of phosphorus in the serum so that the amount filtered by the glomeruli is increased or the amount reabsorbed by the tubules is decreased; (4) combination of two or more of the preceding mechanisms. With these changes in the phosphorus metabolism — mobilization of calcium from the bone is a secondary change by

which an attempt is made to maintain CAPO4 concentration[20].

Other authors still maintain that the direct effect of parathormone is on the mobilization of calcium from the bone. Selye reported (1942) that in nephrectomized rats, parathormone produced osteoclast absorption of bone within 32 hours. Implantation of parathyroid gland on bone produces bone resorption in the area around the gland. The release of calcium from the bone to the blood is brought about by: (1) direct effect on the osteoclast by its toxic effects on the elements of both bone marrow and bone tissue; (2) it elaborates an agent producing soluble complexes of calcium[1].

Recent studies have shown the direct effect of parathyroid hormone upon the matrix of the bone. The osteoid matrix disappears simultaneously with the release of calcium and phosphorus[21]. Carnes (1950) demonstrated the resorption of uncalcified matrix of rachitic animals, and Engel (1951) has shown an increase in the glycoprotein in the serum identified as a constituent of the matrix of bone[21, 22]. These studies indicate the capability of parathormone on bone resorption, but many cases with hyperparathyroidism fail to show any bone disease. In these cases, serum alkaline phosphatase, bone biopsies and the administration of calcium to patients with hyperparathyroidism, all show a positive calcium balance and fail to show any bone involvement. Bone cyst and osteoclastomata would be expected to occur with the same frequency in all clinical types of cases whether or not there is evidence of generalized bone involvement. A high phosphorus intake is not recommended in hyperparathyroidism because of the danger of induction of metastatic calcification and production of CAPO4 renal calculi.

Certain substances have similar properties to parathormone, such as: Calciferol (Vit. D2); A.T. 10 (Dihydrotachysterol). Vit. D2 also induces phosphorus diuresis in a minor degree, but its main action is to increase the absorption of calcium in the GI tract[21].

Dihydrotachysterol (AT 10) has the same effects as Vit. D2, but its major effect is on the phosphorus diuresis and its minor effect on Ca absorption. It more closely resembles the action of parathormone and has the advantage of being free from antihormone production, which renders parathyroid extract ineffective when used repeatedly.

In summary, the functions of parathyroid hormones would be:

1. Lowers blood phosphorus level.
2. Increased blood calcium level;
3. Increased diuresis of both calcium and phosphorus, first of phosphorus, later calcium;
4. Produces osteoclasis of bone by stimulating osteoclast formation and osteoclast activity;
5. Produces bone absorption by direct contact of the gland;
6. Inhibits the calcifying effects of Vit. D;
7. Increases solubility of phosphorus and calcium in order to maintain their suspension in ionic forms.

Certain diseases caused by hyperparathyroidism may be worthwhile mentioning, such as: Recklinghausen's Bone Disease, Pathologic Fractures, Giant Cell Tumors, Bone Cyst, and Renal Calculi.

The important cell in these diseases due to a parathyroid adenoma is the chief cell or principal cell. Two other cells are observed; namely, the water cell (which is simply a transitory stage in the development of the chief cell); and the oxyphil cell which appears to be a resting cell.

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Ophthalmology

The Eye in Diabetes Mellitus

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Ocular pathology occurs frequently in diabetes and is of considerable concern to both patient and physician.

Retinopathy

Retinopathy is the most typical and frequent complication. For the most part, the incidence varies directly with the duration and severity of the disease and is most marked in the young and fragile diabetic.

Microaneurysms, occurring in association with the extremely fine venous twigs, and located around the macula, are the earliest sign closely followed by retinal hemorrhages and firm white waxy exudates. The arterioles show increased sclerosis while the veins are congested and engorged.

Hemorrhages in the retina absorb and recur, becoming larger and more numerous as the disease progresses. Large pre-retinal hemorrhages are formed and finally break through into the vitreous to cause Retinitis proliferans. The latter is a formation of connective tissue membranes which extend from the retina into the vitreous and which contain new minute blood vessels which bleed and regenerate the process. Retinitis proliferans eventually leads to retinal separation and loss of vision.

New Vessel Formation

Neovascularization is typical in diabetes and is observed in the retina, on the disc, in the vitreous (Retinitis proliferans), on the iris (Rubeosis iridis), and on both surfaces of the cornea. In Rubeosis, the angle of the anterior chamber becomes blocked to cause an absolute glaucoma and loss of the eye. Recurrent spontaneous hyphema is a frequent accompaniment of Rubeosis.

Hemorrhage is frequently observed in diabetes and may occur in the retina, choroid, vitreous, anterior chamber, conjunctiva and meninges.

Cataract

As the majority of diabetics are over forty years of age, the senile type of cataract is frequently observed and appears to mature more rapidly than in the non-diabetic patient.

A true diabetic cataract is rare, occurs in young diabetics and consists of snowflake opacities beneath the anterior and posterior lens capsules. It matures quickly and the lens assumes a milky white colour.

Refraction

Changes in refraction are common in diabetics. Refraction moves towards myopia with increased blood glucose and toward hyperopia with a decrease in the blood glucose level. It is therefore advisable to prescribe spectacles only when the blood glucose level is stabilized.

Infections

Blepharitis, styes, keratitis, iritis and other infections are more severe in diabetics, as is the case with infective processes elsewhere in the body.

Neurological Symptoms

(1) Paresis of accommodation: This occurs not infrequently with sudden onset and normal pupillary reactions. It usually improves with general diabetic control measures. Tonic accommodation is also seen, and it together with paresis may require the use of bifocal lenses.

(2) Ocular palsies: These occur in about five per cent of diabetics and may be due to a neuritis or hemorrhagic or thrombotic lesion. Recovery in three or four months is the rule. The palsy may involve the 3rd, 4th and 6th cranial nerves, but the latter is the much more common. External ophthalmoplegia and supranuclear paralysis also occur, but facial nerve paralysis is very rare.

(3) Atypical Argyll Robertson Pupil: This condition is very rarely seen.

(4) Tonohaptic reaction of the pupil: This condition is also very rarely seen.

Optic Neuritis or Toxic Amblyopia

Rarely a central scotoma develops which, if due to an endogenous toxin (diabetes), is referred to as an optic neuritis and, if due to an exogenous toxin (alcohol, tobacco), is referred to as a toxic amblyopia. For obvious reasons, it is difficult to make the distinction.

Treatment

Apart from general diabetic control measures, there is no worthwhile treatment for retinopathy. Infections are treated with the usual bacteriocidal and bacteriostatic drugs in addition to diabetic control. Spectacles are of value to correct refractive and accommodative changes. Cataract surgery is quite successful if precautions are taken against hemorrhage and infection. Anti-glaucoma surgery is very difficult in Rubeosis and often the end result is enucleation.

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Bacteriology

The Pleuropneumonia Group

E. M. D. Cleveland, Ph.D.

The use of the abbreviations PLO and PPLO as well as the term "L-form" has led to some confusion concerning the pleuropneumonia group of organisms. It is essential, then, to understand that the group as currently constituted, consists of those organisms named the Pleuropneumonia Organisms, or PLO, the Pleuropneumonia like Organisms, or PPLO, together with those organisms designated as L-forms.

The group derives its name from the organism isolated in 1898 by Nocard and Roux[1] from cattle infected with contagious bovine pleuropneumonia —a serious infectious disease of cattle, which still persists in Europe, but which was eliminated in North America some fifty years ago. Previously most workers had considered the agent of this disease to be a virus because it could neither be seen under the microscope nor cultivated upon laboratory media. However, the agent turned out to be a very peculiar micro-organism, much larger than most viruses yet smaller than any bacterium. Following this discovery the organism was investigated and described by various bacteriologists including Bordet[2] and Borrel[3] who named it Asterococcus mycoides.

Bridré and Donatien[4] isolated a similar organism in 1923 from sheep and goats with contagious agalactia—a disease involving mainly the joints and eyes, but in lactating animals the mammary glands. In 1934 Shoetensack[5] isolated another similar organism from the tissues and nasal secretions of dogs suffering with distemper, and subsequently a number of like organisms were isolated from various sources by other workers. Since all these organisms resembled those discovered by Nocard and Roux[1], they simply became known as the pleuropenumonia like, or PPLO, organisms.

In 1935 the story of the group took a new and interesting twist. In that year Klieneberger-Nobel[6] found what she considered to be an associated symbiont, a true pleuropneumonia organism, in a culture of Streptobacillus moniliformis. She named it L-one. When she later decided that it was a variant of the Streptobacillus itself, the announcement created quite a flurry of research into the possibility of other organisms, perhaps pathogens, producing similar variants. Soon Klieneberger-Nobel and others[7 8 9 10] had discovered more L-forms, designated L_2 to L_7.

Usually when such micro-organisms are isolated from various sources and without any obvious relationship to a known bacterial species they are termed PPLO, but when isolated from a bacterial culture with an apparent relationship to it, they are referred to as L-forms. Up to the present time at least 18 genera of bacteria, including such well known pathogens as the Staphylococcus, Streptococcus and Salmonella have been reported as producing L-forms. Just to confuse the issue more, L-forms may differ from each other, even when isolated from the same strain of bacteria. Nevertheless there still seems to be considerable dispute concerning the identity of the PPLO and L-forms and although Freundt[11] has classified PLO, PPLO and some L-forms in a single genus, the Mycoplasma, this is not necessarily accepted by all bacteriologists. Freundt himself[12] is of the opinion that the morphology of the L-forms variants is fundamentally different from that of the PPLO. In recent years it has been held that perhaps the PPLO are stabilized L-form variants of bacteria similar to those from the L-form colonies of known bacterial origin. Freundt[12] suggests that true PPLO may develop L-form variants.

Undoubtedly the Mycoplasma would be much better known amongst bacteriologists if their presence in culture material could be more readily demonstrated. Although they will grow fairly readily in liquid media, especially when it is enriched with ascitic fluid or blood serum, they grow slowly and produce little or no turbidity. They can also be cultivated fairly readily upon various body-fluid enriched solid media, but their growth is slow and the resultant colonies so minute as to be missed easily in the course of a routine examination.

If by any chance the colonies are noticed, and scraped off the surface with a loop in the way usually favored by bacteriologists, their structure is destroyed and nothing recognizable will be seen in the resultant debris after heat fixation and the inevitable gram staining. Unfortunately, because it is time consuming, if such colonies are to be examined they should be handled by Ledingham's method. This involves dropping a coverslip over the colony, and when the colony has become affixed to it, staining it by Giemsa or Leishman's method. The PPLO are gram-negative, but stain rather poorly by that technique. The non-motile PPLO may also be studied by dark-field microscopy.

The appearance of Mycoplasma colonies on solid media is quite characteristic. The extremely tiny colonies have an opaque, granular, brown to yellow central area which tends to burrow into the agar; this central area is surrounded by a translucent, flat zone of variable size. On blood agar plates they appear extremely minute, transparent, non-haemolytic colonies after three or four days incubation. The Mycoplasma grow just as well aerobically or anaerobically, but the addition of 5 to 10 per cent

CO_2 is said to aid in primary isolation. A most important point about their cultivation is that the plates must be kept moist during incubation; this may be achieved either by placing the plates in a closed jar or by sealing the individual plates. Because the plates used in routine culture methods are not kept especially moist, nor incubated more than 24 hours, it is obvious that Mycoplasma colonies would not develop to visible size on them and they would doubtless be missed in material harbouring them.

The distinctive features of the members of the Mycoplasma, to which they owe their unique position, are their seeming lack of a rigid cell wall, their highly pleomorphic cell form, their peculiar colony appearance, their ability to pass through bacteria proof filters, such as the Berkefeld V and Gradocol membranes coupled with their ability to grow on cell free media.

The growth of the PPLO in fluid media results in many different morphological forms, bacillary and spiral, ring, filament and granule, which latter resembles an elementary body. According to some observers, these highly pleomorphic organisms have a peculiar mode of reproduction which is characterized by the breaking up of filaments, which show more or less of a tendency to true branching, into coccoid elementary bodies. It is these latter forms which are able to pass the bacteria-proof filters and have a diameter in the order of 250 to 300 millimicrons, which makes them about the same size as the vaccinia virus, or roughly a tenth the size of a Staphylococcus. They are thus the smallest micro-organisms ever cultivated upon a cell free medium.

The strange morphology of the Mycoplasma seems to be influenced by a number of factors but more especially by the age of the culture. Agreement has not as yet been reached concerning their true morphology and method of development, but in general the picture is as follows: the elementary bodies extrude one or more filaments of varying length which form a myceloid structure. Later these homogeneous, coenocytic filaments become transformed into chains of spherical bodies which are released upon fragmentation of the chains to once more become elementary bodies. These bodies are apparently exceedingly plastic and may under certain conditions develop into what are termed "large bodies." These large bodies may, according to some observers, then develop granules within themselves which upon rupture of the cell membrane are released as elementary bodies. The claim of a close morphologic similarity between the PPLO and the L-forms of bacteria is, according to Freundt[12], based upon the occurrence in both of them of these pleomorphic "large bodies" and upon the belief that the latter are able to reproduce by the liberation of their intracellular granules. Freundt is of the opinion that these large bodies are merely involutionary forms and that no importance can be attached to them in establishing a taxonomic relationship between the L-forms and the PPLO: moreover he believes that the morphology of the L-forms is quite different from that of the PPLO since the formation of branching, elementary body-forming filaments is not a common characteristic of the L-forms. Of a contrary opinion are Dienes and Weinberger[13], and Tulasne[14] who think that the similarities between the PPLO and L-forms of bacteria are sufficient to justify their relationship. Whether or not the PPLO and the L-forms of bacteria are quite different or related forms still remains very much a point of argument.

During the last thirty years a large body of literature upon the PPLO has been accumulated and the organisms have been found in one species or other in nearly every corner of the globe. Avian species have been found in various birds, and animal species in dogs, cats, rats, mice and guinea pigs not to mention sheep and goats. Three species have been isolated from human sources M. hominis, M. salivarium and M. fermentans.

The first published report of the isolation of the PPLO from a pathologic state in the human genito-urinary tract, was that of Dienes and Edsall in 1937[15]. Since that time most of the work upon human strains of PPLO has concerned the possibility of their relationship to pathology in that region.

It is to the members of a group of PPLO isolated by workers in England and France that the name M. hominis has been given[16]. This is divisible into two serological types and both have been isolated from the male and female genital tracts and the anal canal; these types have been also recovered in pure culture from the blood of a patient suffering from septicemia (Stokes[17]), and in another case, from the pus of a broncho-pleural fistula. Serologically different strains have been found in ulcerative genital lesions in association with fusiform bacilli and spirilla[18] as well as on apparently normal genital mucosa. These latter varieties have been named M. fermentans. M. salivarium was isolated, as its name suggests, from human saliva by Nicol and Edward (1953)[16] and further strains have been isolated from the mouth and pharynx by Smith and Morton[19].

Obviously venereal transmission is a consideration seeing that the PPLO are present in either male or female genital tracts, and in fact a number of instances of apparent transmission from husband to wife and vice versa are recorded in the literature.

Many investigators have studied the relationship of the organisms to non-gonococcal urethritis; in various surveys the proportion of positive isolations from cases has varied, but has never exceeded 50 per cent. However, it should be realized the organisms have also been isolated from healthy individuals used as controls. Edward[20] is of the

opinion that, although there is little doubt that the organisms can be pathogenic for man, their pathogenicity would seem to be like that of E. coli, which is a normal inhabitant of the gut, but can produce a pyogenic infection if it gains access to other parts of the body. The findings suggest that M. hominis is not the cause of nongonococcal urethritis, but is a commensal, although it may produce some ill effects when it gains access to the urethra.

The PPLO have also been proposed recently[21] as possible candidates for the etiologic factors in non-granulomatous types of uveitis. In this regard it is interesting to recall that Bridré and Donatien[4], when describing the syndrome of agalactia in sheep and goats back in 1923 had noted corneal lesions and had isolated PPLO from conjunctival sacs and joints.

In cases of Reiter's disease there have been various clinical reports in which an etiologic relationship between the PPLO and the symptoms of conjunctivitis, urethritis and arthritis was suggested. In one instance Schaffarzick and Mankle[22] reported the isolation of PPLO from sexual partners, one of whom had Reiter's disease. Kuzell and Mankle[23] report that while working with PPLO cultures from a male patient with Reiter's disease, a young male technician developed acute urethritis and conjunctivitis from which PPLO were recovered. Culture of fluids from inflamed joints of individuals with PPLO in other regions of the body have only occasionally yielded the organisms, as compared with the findings in animals. PPLO have been isolated by Butas (1957)[24] from knee joint fluid in two cases of polyarthritis in women.

The demonstration of the pathogenicity of PPLO strains is not readily achieved because they usually only exhibit their activity upon experimental inoculation into the species of animal from which they were isolated.

In a recent paper[25] Kleineberger-Nobel has concluded that genital strains of PPLO are associated with recently acquired urethritis in a high proportion of men suffering from non-gonococcal urethritis; they are associated with cervicitis, vaginitis and urethritis in women; they are likely to be transferred by sexual intercourse; they are often associated with gonococcal infection and trichomonal infestation; they are absent in boys under the age of puberty and are rare in healthy men and women.

In so far as regards the suggested relationship between Reiter's disease, nongonococcal urethritis and PPLO, she believes she can offer no positive evidence for such a relationship, since PPLO were not found in any of the synovial fluids from patients with Reiter's disease whoch she examined and only rarely in the urethral discharges from patients with that condition.

Man may have more intimate contact with strains of PPLO from bovine sources than is generally realized. Alstrom[25] reports PPLO present in the milk from both diseased and supposedly healthy cows, in herds in which there was clinical mastitis; moreover these organisms were resistant to pasteurization.

The sulfonamides, penicillin, erythromycin, polymyxin and bacitracin do not inhibit the growth of PPLO in vitro and are ineffective as therapeutic agents against human PPLO strains. (Leberman et al)[27], (Rubin et al)[28].

Streptomycin shows more effect than dihydrostreptomycin, at least in vitro, but the PPLO can develop resistance to it. Chlortetracycline and chloramphenicol inhibit the growth of some but not all strains in vitro. Oxytetracycline and tetracycline as well as neomycin, have inhibitory action in vitro but oxytetracycline appears to be the drug of choice in the treatment of PPLO infections.

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Recent Advances in Sterilization
II: Ethylene Oxide Sterilization

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The first article in this series was concerned with the new high-vacuum autoclave equipment that in reality is an improvement of existing apparatus. Nevertheless, it is an improvement providing startling results. This article describes what is really a new principle: the sterilization of materials used in medicine by permeation with gas. It is true that in the past other gases have been used in attempts to sterilize, for example, chlorine, sulphur dioxide and formaldehyde; however, of these only the last has been used at all extensively, but it has been shown to be unsatisfactory since the gas has no power of permeating and merely condenses on easily accessible surfaces. Also formaldehyde requires a high humidity to be effective (an undesirable feature for goods that are required to be dry) and the necessity for this suggests that formaldehyde does not act as a gas but as formalin—a loose compound of the gas and water. On the other hand, ethylene oxide, the gas we are going to consider, has the property of permeating many materials including plastics and rubber, and its sterilizing activity is not favoured by high humidity, thus it is thought to be active as a gas. It becomes clear that the principle of the use of ethylene oxide is different from that of formaldehyde.

Where it is not specified the information that follows was obtained from Phillips and Kaye (1949), Kaye (1950), Phillips (1958), and Thomas (1960).

History

Ethylene oxide was first described in 1859, but it was not until 1928 that it was used to kill a wide range of insect pests. In the following years it became an industrial fumigant particularly in the food trade. Its antibacterial properties were described in 1929 but bacteriologists in general were unaware of its existence until the subject was reviewed by Phillips and Kaye (1949).

These two workers situated, in Fort Detrick, were looking for a suitable gaseous sterilizing agent. First of all, they used up the only available small bottle containing 50 grams of ethylene oxide and, then, during the time it took to re-order more, they discovered that this material had been widely used and there were some 200 papers on its use as an insecticidal fumigant. Much of the previous published work on ethylene oxide was hidden in the patent literature. Subsequent to this, they discovered that a major spice importer in Baltimore, only 45 miles away from Fort Detrick, was using ethylene oxide to sterilize spices. Furthermore, they discovered that another bacteriologist at Fort Detrick, engaged on a completely unrelated project, had done some work in the past in which he had shown that soil could be sterilized with ethylene oxide.

It was a series of four papers by Kaye and Phillips from Fort Detrick that caused the bactericidal properties of ethylene oxide to be widely known and recognized. At about the same time, in the Journal of the American Medical Association a paper appeared by Wilson (1950) of du Pont describing the use of ethylene oxide in the sterilization of plaster bandages. In the last ten years ethylene oxide has been used more and more widely for the industrial sterilization of surgical and medical goods including plastics and other things damaged by heat, including drugs. More recently it is becoming evident that it has useful applications in medical research and hospital practice. Ethylene oxide is readily available since it is widely used as an alkylating agent in the chemical industry for the preparation of acids, esters, ethers, surface-active agents and detergents.

Properties of Ethylene Oxide

Ethylene oxide at room temperatures is a freely diffusible gas able to penetrate paper, cellophane, fabrics and many (but no all) plastics. On cooling to below 10° C. the gas condenses to a colourless liquid. Ethylene oxide is freely soluble in water, oils, nearly all organic solvents, rubber, neoprene and some plastics.

Liquid ethylene oxide is stable to detonating agents but the gas is explosive. The gas, however, can be made safe by dilution with carbon dioxide or fluorocarbon gases known as "Freons."

Toxicity of Ethylene Oxide

(i) By inhalation — Owing to its wide use in industry the toxic properties of ethylene oxide have been well studied. Animal experiments show that, on inhalation, ethylene oxide is about as toxic as ammonia. A suggested suitable industrial standard upper limit is 50 parts per million (p.p.m.) although there appears to be general acceptance that 1000 p.p.m. or less is not toxic. The first symptoms caused by exposure to the vapour are usually irritation of the eyes and nasal passages—this has been found to occur in man at a level of 2500 p.p.m., whereas 12,500 p.p.m. caused definite irritation to the nasal passages in 10 seconds. The next symptoms are nausea, vomiting and headache. These are usually the only symptoms and they rapidly clear up. However, there have been rare instances of more serious illness and death as a result of industrial accidents in which ethylene oxide has been liberated. As the vapour will diffuse through certain plastics it is simple to devise plastic containers holding indicator systems which will change colour when exposed to various concentrations of ethylene oxide.

(ii) Vesicant Action—Solutions of ethylene oxide have a vesicant action on the skin and may cause conjunctivitis if splashed in the eye. Workers who

had been drenched from the waist down with a 1% solution of ethylene oxide developed very large blisters after a latent period of six or more hours. In experiments with human volunteers it was found that on freely exposed skin surfaces pure liquid ethylene oxide boiled rapidly and caused no injury other than temporary freezing. If solutions of ethylene oxide were kept in intimate contact with the skin, varying degrees of vesication occurred after a latent period. In accidental burns an important factor in determining the extent and distribution of blistering is whether the solution of ethylene oxide has been held in contact with the skin by gloves, shoes, clothing, belts, watch straps or jewellery. Skin lesions due to ethylene oxide have been reported when people have come into contact with freshly sterilized articles such as boots, shoes and gloves. Although ethylene oxide normally evaporates very rapidly some substances such as rubber absorb large quantities and it may take time for the ethylene oxide to disperse.

(iii) Hypersensitivity Reactions—It has also been shown that with repeated exposure ethylene oxide will produce sensitization.

Anti-bacterial Activity

A wide variety of organisms have been exposed to ethylene oxide in one form or another. The gas is bactericidal and will also destroy spores at a concentration not very much greater than is required for the corresponding vegetative organisms. With most chemical disinfectants, bacterial spores are many times, often thousands of times more resistant than vegetative cells. With ethylene oxide, spores are usually only slightly more difficult to kill than vegetative cells and several workers have noted survival of organisms such as Staphylococcus aureus when heat-resistant spores have been killed (Eisman, 1951; Thomas, West and Besser, 1959). The gas is active against tubercle bacilli and the viruses it has been tested against. Ethylene oxide has also sterilized laboratory media, heavily contaminated throat washings, feces, floor sweepings and soil.

Ethylene oxide is believed to act as an alkylating agent because it has considerable chemical activity and is capable of reacting with many substances of biological importance including amino acids, proteins and nucleoproteins, (Phillips, 1949; Alexander, 1954). There are a number of related substances, some of which are bactericidal, but for one reason or another ethylene oxide is the preferred one.

Factors Affecting Sterilization with Ethylene Oxide

The main factors affecting the sterilizing action of ethylene oxide gas are:

(i) Concentration of Ethylene Oxide—At present concentrations of from 10 per cent to 20 per cent are used; the frequently quoted percentages refer to the specific condition of initial vacuum, temperature and pressure of presently available equipment —more accurately stated, the concentration of ethylene oxide is between 360 and 1000 milligrams per litre (Shull, 1960). The higher the concentration the greater is the sterilizing action. However, above 20 per cent the risk of flammability is apparently high.

(ii) Temperature — As far as has ben tested the higher the temperature the greater is the sterilizing action of ethylene oxide. Too much heat of course would defeat one of the purposes of ethylene oxide sterilization, that is, its ability to sterilize things that are destroyed by heat. At present one type of apparatus uses a temperature of 130° F. (54 C°.) during sterilization with ethylene oxide.

(iii) Humidity — Ethylene oxide sterilizes less efficiently when humidity is high than when it is lower. Conversely complete dryness adversely affects sterilization by ethylene oxide. Ethylene oxide (10 to 20 per cent) is most efficient at relative humidities of from 30 per cent to 60 per cent when used at 130° F. (54° C.).

(iv) Time — As with every other disinfecting or sterilizing agent materials must be exposed to ethylene oxide for a sufficient length of time. Using ethylene oxide under the conditions of temperature, humidity and concentration mentioned in the last paragraph, up to three or four hours may be required for sterilization (Skeehan, King and Kaye. 1956), although others (Davis et al, 1957; Skeehan, 1959) claim that certain things could be sterilized in one hour. It is suggested that higher temperatures would shorten sterilizing time (Thomas, 1956).

Articles Sterilized by Ethylene Oxide

The main advantages of ethylene oxide as a sterilizing agent is that it can be used to sterilize objects which cannot ordinarily be sterilized by other means. Sterilization can be carried out at low temperatures. The gas rapidly diffuses through closed containers of paper, fabric and plastics. It is soluble in oil and water. It is active in the presence of organic matter. It is relatively non-toxic and causes little damage to a wide range of materials and at the completion of the sterilization process the active agent rapidly diffuses away.

Ethylene oxide has been used to sterilize a wide variety of things such as rockets destined for outer space, a whole army truck, the inside of an aeroplane contaminated with poliovirus, tobacco, cosmetics and many foodstuffs including fruit juices, vegetable oils, spices, flour, sugar, starch, bread and eggs with intact shells.

In the medical field ethylene oxide has now been used widely for the following things:

(i) Bacteriological media.

(ii) Drugs — such as antibiotics of which some lose potency during exposure to ethylene oxide.

(iii) Plastics — a very wide variety of plastics are sterilized by ethylene oxide because they are

sensitive to heat. Many, if not all, disposable plastic items used in hospital and by doctors are sterilized by ethylene oxide.

(iv) Domestic Articles — many such articles require decontamination after exposure to infections including gastro-enteritis, staphylococcal sepsis, and tuberculosis. These include all types of clothing (wool, cotton, silk, rayon, nylon, fur coats), footwear, books, radios and so on.

(v) Bedclothes — these may require decontamination at home or in hospital. Ethylene oxide sterilization is particularly useful for blankets, pillows and mattresses for which there is, for all practical purposes, no other convenient method of sterilization.

(vi) Hospital Equipment:

(a) Dressings and Sutures—many commercial firms sterilize their dressings and sutures with ethylene oxide for use in hospitals.

(b) Rubber—it is claimed that it is perfectly possible to sterilize and maintain the softness of rubber gloves, catheters and so on (Laskowski, 1960). It is also claimed that they last longer.

(c) Lensed and Other Glass Containing Instruments — Opthalmoscopes, cystoscopes and bronchoscopes have been satisfactorily sterilized with ethylene oxide.

(d) Sharp Instruments.

(e) Complex Apparatus and Miscellaneous Items — bone saws, microphones, X-ray film for placing in body cavities, newborn incubators, cameras, anaesthetic and respiratory apparatus and various types of heart-lung machines (Bracken et al, 1960). Spencer and Bahnson (1958) described a suitable method for sterilizing a completely assembled pump oxygenator by means of ethylene oxide.

Deleterious Effects of Ethylene Oxide

Liquid ethylene oxide is somewhat more damaging than the gaseous form but here we are concerned only with the gaseous form, which may cause slight damage to some plastics.

Ethylene oxide has important effects on biological materials — it haemolyses red blood cells and there is evidence that it inactivates complement and prothrombin and reacts with certain proteins. On the other hand it may destroy the infectivity of viruses without any effect on their antigenicity.

Bacteriological media and experimental diets show an increased alkalinity after sterilization with ethylene oxide. The former showed no loss of ability to support the growth of micro-organisms but the latter failed to maintain the weight of rats.

Although some antibiotics can be sterilized without appreciable loss of activity others show a diminution in potency.

Summary of Advantages of Ethylene Oxide Sterilization

The advantages of ethylene oxide sterilization seem to be as follows:

(i) Few materials damaged.
(ii) Good penetration.
(iii) Effective at low temperatures.
(iv) Effective at low humidity.
(v) Little residual effect.
(vi) Lethal for all organisms including tubercle bacilli spores and viruses.
(vii) Very nearly as active against spores as vegetative organisms.
(viii) Wide variety of goods which can be sterilized with no damage, including articles impossible to sterilize otherwise.

Disadvantages of Ethylene Oxide Sterilization

To be weighed against these advantages there are the following disadvantages to be considered:

(i) There are claims that sterilization is not in fact achieved by ethylene oxide on the basis of special bacteriological tests of some commercial equipment (Znamirowski et al, 1959). This may well be so, but it is equally plain from a considerable amount of published work that, provided that the right combinations of time, temperature, humidity and gas concentration are obtained, all micro-organisms tested can be destroyed. In any event the proof of the pudding is in the eating: in St. Mary's Hospital, St. Louis, Mo., an ethylene oxide sterilizer has been in continuous operation for two years and there has been no evidence of infection resulting from its use. Furthermore when one considers the large amount of commercially available ethylene oxide sterilized plastic and surgical dressings used in hospitals and elsewhere it seems plain that ethylene oxide is an efficient sterilizing agent. However, in view of the claims it would probably be wise to test ethylene oxide sterilizers bacteriologically on frequent occasions—even every time it is used (Laskowski, 1960).

(ii) Engineering Difficulties — there are claims that engineering difficulties are frequent. It is true that some pieces of equipment have given trouble initially but once this has been overcome apparently such difficulties are negligible compared with the financial saving which will be discussed below.

(iii) Slowness — one disadvantage of ethylene oxide is that it is slow. This is quite true but is by no means insuperable. At present, it would be necessary to obtain sufficient apparatus to use during, say, 24 hours while another batch of apparatus is being sterilized. This would allow plenty of time for adequate exposure to ethylene oxide, sufficient time subsequent to exposure for "airing" to ensure that all ethylene oxide is eluted from rubber and plastics, and, finally, time for preliminary results of bacteriological tests. It may be objected that the purchase of such additional equipment would be unduly costly, however, as will be seen below, ethylene oxide sterilization may result in considerable obvious savings. Furthermore it is generally

agreed that anything tending to diminish hospital infection will result in financial saving.

(iv) Special Equipment — another disadvantage is said to be that ethylene oxide sterilization demands special equipment. This of course is true but the same may be said for any new development. However an ordinary autoclave chamber can be used. A preliminary vacuum is drawn and a small amount of steam is allowed to enter intermittently under controlled conditions to maintain the correct humidity. Ethylene oxide is readily available and is supplied to the chamber from tanks of the gas suitably diluted with an inert gas.

(v) Space Requirements — another disadvantage is that for economical operation ethylene oxide sterilization requires a considerable amount of space: Firstly, for the reception of goods to be sterilized including bulky items such as mattresses, pillows, blankets, newborn incubators and so on. Secondly, for holding the sterilized goods while they are "airing." In the unit at St. Mary's Hospital mentioned above, a little more than 1500 square feet were allocated to ethylene oxide sterilization. Thirdly, the sterilizer chamber itself would have to be larger to accommodate bulky items such as mattresses and since the sterilizing period is a long one the chamber should be large enough for the routine requirements of one day.

(vi) Cost — slowness of sterilization requiring extra apparatus, special equipment, space requirements and the cost of the gas make ethylene oxide sterilization more expensive than steam under pressure. On the other hand there are two considerable sources of saving that ethylene oxide provides. Firstly, surgeons' rubber gloves: these can be sterilized up to 30 times (Lasowski, 1960) without deterioration whereas in steam sterilizers they can be sterilized only four or five times and gradually become less elastic. It is estimated that in 500-bed hospitals about $4,000.00 can be saved in a year if ethylene oxide sterilization is used for rubber gloves instead of steam sterilization. The second source of savings is in bedclothes (exclusive of sheets which are easily laundered): blankets that appear relatively clean may be permeated with large numbers of bacteria. Ordinarily, in some hospitals, such blankets are laundered or dry-cleaned after use by each patient. This results in damage to the blankets which are certainly not sterile. Ethylene oxide sterilization of blankets in plastic bags is cheaper and results in much less damage than either laundering or dry cleaning resulting in considerable savings.

(vii) Inflammability — the inflammability of ethylene oxide presents no problem in equipment designed for hospital use since it is suitably mixed with an inert gas and may be handled quite safely with appropriate engineering safeguards.

(viii) Toxicity — since the gas mixture is not flammable it may be exhausted to the outside air and appropriate safeguards can be applied to prevent toxicity by inhalation. Toxicity from vesication by ethylene oxide passing on to the skin from such things as rubber gloves, plastics and so on may be avoided by ensuring an adequate "airing" period after exposure to the gas during sterilization.

Summary

It seems that the advantages of ethylene oxide sterilization far outweigh the disadvantages. In fact, ethylene oxide sterilization seems to be the answer to all the difficult problems of disinfection and sterilization that arise in hospitals today. Experience has shown that it is efficient and will work in hospital. Disadvantages can be countered by careful organization of the flow of goods to be sterilized and awareness of the possible dangers. The expense of special equipment, space and the slowness of the process will be offset by savings on using the equipment to its fullest capacity on such things as gloves, blankets, mattresses and pillows.

Acknowledgments

It is a pleasure to acknowledge the helpful discussions with Dr. J. J. Shull, Bacteriologist to the Wilmot-Castle Company, Dr. L. F. Laskowski of St. Louis University School of Medicine, and Sister Mary Celeste, S.S.M., in charge of ethylene oxide sterilization at St. Mary's Hospital, St. Louis, Mo.

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Editorial

S. Vaisrub, M.D., M.R.C.P. (Lond.), F.R.C.P. (C.), F.A.C.P., Editor

The Doctor Image

A man's image of himself is lacking, sadly or happily as the case may be, in photographic exactitude. Not only are the edges blurred, but the whole picture may be out of focus. The lascivious old rake shamelessly ogling a young cutie across the street erases from his self-image all the evidences of senility. The aging beauty, admiring herself in the looking glass, sees her reflection suffused with the magic glow of the golden past, undimmed by the passing years. The amputee with the pain in his "phantom" defies the evidence of the senses by including the missing limb in his body image, while the hemiplegic with agnosia of hemiplegia excludes the paralyzed ones from his. Such are the vagaries of human self viewing.

Less subjective and, thus, less distorted than the self image are the images we form of other people. But they too are by no means objective. Hardly paragons of veridical depiction, they are colored by conditioning influences of past experiences and preconceptions. The visage of those we love changes but little with the passing years. We hardly notice the wrinkles, the grey hair, the stoop and the tremor. How different the appearance of those we dislike. Their flaws multiply, their defects grow bigger, their ugliness increases.

The lack of objectivity in our image formation is skilfully manipulated, and exploited by advertisers, propagandists, actors, politicians, and self anointed "experts" of the press, radio and television. These image makers are just as effective in perpetuating the image of a ludicrous mother-in-law as that of a benevolent presidential candidate. They are equally adept at outlining and adumbrating at will doctor-images to suit their purposes.

What is the currently popular doctor-image in the public mind? The emphasis on the "currently" in this question is due to the fact that this image has never been constant nor consistent. Between saintly Aesculapius and Hippocrates and charlatan itinerant physicians of Imperial Rome, between mirth provoking money grabbing ignoramuses of Moliere's plays and the beloved horse and buggy doctor of the Victorian era, it ranged over a wide spectrum of colors. What then is the contemporary image? Is it that of an imperious man in a white gown operating on the ductal tract ("The secret life of Walter Mitty." James Thurber), that of a starry-eyed dreamer in a lab coat (white, of course) trying out a new life-saving serum on a batch of white mice, that of a kindly white-haired man in a shabby suit (color undetermined) prescribing a comfort giving medication, or that of a mercenary smoothie with an expensive face dressed in a dinner jacket (black this time) tipping the waiter in a night club with Joe Doe's hard earned dollars?

All the above silhouettes flash before the public eye when the word doctor is mentioned, each of them vying for dominance. It is to be feared that the last vision, that of the dark knight of the night club is emerging triumphant. The radio and the press are becoming most unflattering. In the special supplement to the October 1960 issue of the Harper's magazine devoted to the "crisis in American Medicine," the doctor, although not quite the villain, certainly does not come out the hero. He is depicted as drifting into "an upper class status identification that prevents him from recognizing the wishes and the needs of the great mass of his patients."

How do these images compare with the doctor's self image? They certainly bear little resemblance. The doctors, by and large, see themselves as hard working harassed dedicated men, exposed to great physical, mental and emotional stresses. They do not view themselves as shrouded either in white or black. Which of these images is the true one, the self-image of the doctor or the doctor-image of the public? The answer to this question is of prime importance, for it will influence to a large extent the future status of the medical profession in society. The more this question is discussed between intelligent laymen and articulate doctors the more light will be shed on the controversial image and, what is equally important, on the background against which it may show up to the best advantage, for just as a fitting background is contributory to the effectiveness of a portrait, so is a favorable socio-economic-political environment essential to the proper performance of its subject.

Ed.

DIAGNOSIS: Acute Tonsillitis
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Questions and Answers Page

In order to keep the medical profession informed as fully as possible in all matters relating to Association business, medical economics and prepaid medical care, this page welcomes questions pertaining to these fields.

Itinerant Surgery

Question:

Can you tell me something of itinerant surgery and the Association's point of view in this respect?

Answer:

Itinerant surgery (it can be argued whether or not this is the proper terminology) has been subject matter for debate and discussion on many occasions. It again came to the fore over a year ago when it was suggested that surgeons or a "team" might visit rural hospitals and so ease the tight hospital bed situation which then existed in Metropolitan Winnipeg. It was obvious that referrals to Winnipeg were difficult to arrange whereas many rural hospitals were operating much below maximum occupancy.

The question of itinerant surgery immediately raises queries and arguments both pro and con, for example:

The financial responsibility to the visiting surgeon or "team." Should this be borne solely by the patient or as suggested, shared by other agencies because of the easing of the bed situation and the presumed saving in hospital expense.

Would there always be provision for a competent operating room team including nurses, all of whom should be experienced in the practice of the operating surgeon?

Who would be responsible to the patient for competent post-operative therapy?

Is there the possibility that major surgery may be done by less skilled hands were it not for the invitation extended to the itinerant surgeon?

Is there any substance in the statement that itinerant surgery may give rise to the prevalence of fee splitting, more so than if the patient was referred to the surgeon?

It is suggested that the patient may have a more uneventful recovery if he is hospitalized and operated on in his own home locale where family and friends may be ready visitors.

It has been said that many rural hospitals are well equipped and should be used to their capabilities whereas reports from those who have studied hospital facilities indicate few rural hospitals are in the "well equipped" bracket.

Other Associations have considered this situation and have made policy announcements.

At the Ontario Medical Association Annual Meeting in 1958, itinerant surgery was discussed and an extract from the transactions reads as follows:

"That surgery by a visiting surgeon is generally undesirable except in cases where moving the patient will jeopardize his welfare or where an urgent condition exists in which undue delay in transferring the patient to a larger centre would aggravate his condition.

"When the services of a visiting surgeon are deemed necessary both the surgeon and the referring physician should be paid a full fee. The surgeon should be paid for the service he renders, a fee equivalent to the surgical fee (as would be paid in a surgical case not involving a visiting surgeon). The referring physician should be paid an assistant's fee, if he assists, at a rate to be determined and for carrying out the post-operative care he should be paid for his visits on a per visit basis at regular rates."

In the C.M.A. Journal, April 1, 1959, there was an article by the Royal College of Physicians and Surgeons on itinerant surgery. Extracts from the article read as follows:

"In general The Royal College of Physicians and Surgeons disapproves of itinerant surgery. It is permissible only when there is need of skill in the art of surgery not possessed by those practising in the local area. The surgeon is morally and perhaps legally responsible for the diagnosis of the condition for which he operates, and for the postoperative care of the patient. If this principle is violated in the practice of itinerant surgery, it is difficult to insist on its observance under other circumstances.

"When the welfare of the patient makes necessary the employment of a visiting surgeon rather than one resident in the area, the arrangement regarding fees should be such that there is no improper financial inducement to the referring doctor or the surgeon."

The Board of Regents of the American College of Surgeons have issued a statement on itinerant surgery which was adopted at its February, 1960 meeting. We quote in part from this statement:

"The Board of Regents of the American College of Surgeons is opposed to itinerant surgery and considers its practice inimical to the welfare of surgical patients. The Regents define itinerant surgery as any surgical operation performed, except one upon a patient whose chances of recovery would be prejudiced by movement to another hospital, in which, because of distance from the patient, the operating surgeon must delegate the exacting responsibility for post-operative care to another who by training and experience is not fully qualified to undertake it. This definition excludes surgical care which cannot be delayed, without hazard to the patient, other necessary operations upon patients who cannot safely be moved to a hospital in which the operating surgeon is in regular attendance, and operations requiring special skills, following which the postoperative care is left to another surgeon who is fully qualified to undertake it."

Local Hospital Boards have, through the Standards Division of the M.H.S.P. asked for an opinion from the M.M.A. about itinerant surgery. Your Executive felt that the Surgical Section should be one of the groups to study and report on this question of itinerant surgery and their recommendation to the Executive is anticipated with much interest. In the interim the Association has not formed a policy opinion.

What are your thoughts on the matter? It would be worthwhile to have an expression of opinion from our membership. The Letters to the Editor Column is a media for making your thoughts known to others.

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Association Page

Newsettes

Annual Meeting, 1961

This is an event that requires advance planning and the wheels have already been set in motion. The Royal Alexandra Hotel has been chosen for the location; the dates to be October 10th to 13th inclusive.

The Scientific Program Committee under the Chairmanship of Dr. A. G. Rogers met in November and are now planning for the best in guest speakers. M.M.A. members who wish to present a paper are asked to contact the Association office.

Rehabilitation

The Chairman of the committee reported the opening of a new physiotherapy and occupational therapy unit at the Assiniboine Hospital in Brandon. This will provide a complete in-patient and out-patient service and will be available to any doctor in the Brandon area.

The Canadian Arthritis and Rheumatism Society will have an administration office in the building and will have access to all facilities. The institution is under the direct supervision of Drs. Povah and Coghlin and Dr. Truelove will spend every second Tuesday at the institution where he will be available for consultation.

Commission on Medical Education

A letter dated November 16th, 1960, from the Acting Secretary of the Commission was circulated to all members and is reprinted for your information. Please note the deadline for submission of briefs.

Commission on Medical Education in the Province of Manitoba

The President,
Manitoba Division, Canadian Medical Association,
601 Medical Arts Building,
Winnipeg 1, Manitoba.

Dear Sir:

Recently the Government of the Province of Manitoba has established a Commission to enquire into medical education. In broad scope, the terms of reference are to consider the education of prospective physicians in the light of changing economic status of the patients, so necessary in the clinical education of the student doctor.

In view of the interest of the Manitoba Medical Association in this matter, the Commission asks you to submit a brief for its consideration and permission to interview representatives of your association at the appropriate time.

It would be of great value to the Commission if the following topics could be covered in your brief:

a) The attitude of the Manitoba Medical Association to the current situation with particular emphasis to the recently introduced "Medicare" scheme.

b) Any proposals to ensure an adequacy of clinical material in the event that the "Medicare" scheme is enlarged to include payment to the private physician for both office and hospital care for all social welfare, indigent and "medically indigents" in the province.

c) The Commission feels that the problems of undergraduate and graduate (residency) training present rather different problems and the Commission would like an expression of opinion on measures to ensure adequate training of residents.

d) In any extension of the "Medicare" scheme the economics of payment for patient care will be important. The Commission would like to know the attitude of the Manitoba Medical Association towards the payment of medical care given to patients on the teaching wards and out-patient departments of the teaching hospitals.

e) The Commission would appreciate an expression of opinion from the Manitoba Medical Association as to its responsibilities in the field of education of the future doctor.

Please regard the above as only suggestions as to content and feel free to include any other relevant material.

For the Commission to complete its work in any reasonable time, the deadline for briefs will be January 31st, 1961.

As acting secretary, on behalf of the Commission, I have been asked to address this request to you.

Yours sincerely,
J. P. Gemmell, M.D.

Finance

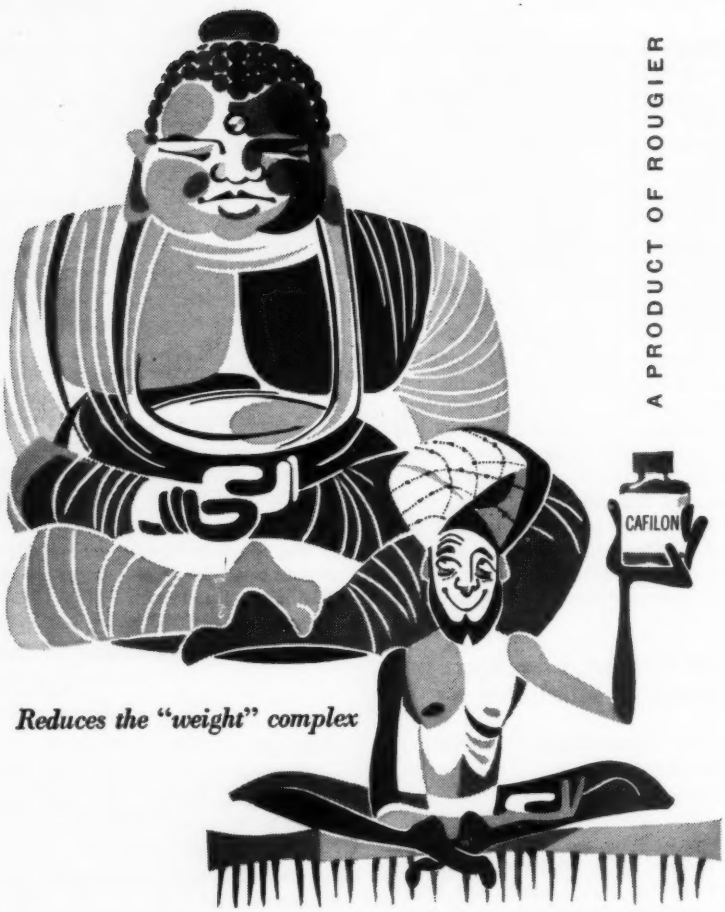
Sections have in the past requested an understanding in connection with financial help which may be expected from the Association to offset the cost of outside speakers.

The Executive Committee have approved that financial assistance be extended to Sections bringing in medical speakers when the address takes place before an open meeting on a topic of general interest, and provided the local District Medical Society approves.

Public Relations

The Committee Chairman recently reported on the happenings at the C.M.A. Public Relations Workshop held November 18th and 19th in Montreal.

A recent survey of C.M.A. operations by a management consultant firm brought forth the suggestion for close liaison between the Public Relations and Medical Economics Committees; a statement that the present Secretarial staff is



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adequate for the present program and a recommendation for obtaining a professional Public Relations Counsel

Reports from the various divisions were of interest and we quote from your Chairman's notes:

The report of the B.C. Division was of particular interest. Particularly noteworthy were the comments on their recent provincial election. At the outset, their president released a statement to the effect that the B.C. Division would always co-operate with the government of the day in the study of all health matters; and the Division carefully avoided, successfully, becoming engaged in any political controversy. Medical, social and economic planning were not an issue in the campaign there and the B.C. Division Public Relations people felt that their initial statement had contributed to this being the case. In fact, two of the party leaders each spent one or two hours with the president of the B.C. Division purely for purposes of gaining knowledge and information. This was in contrast to the difficulties in Saskatchewan but of course the political variants were greatly different.

Another matter not incorporated in the formal report concerned areas of friction between practicing doctors in British Columbia and the several prepayment plans operating there. They now have a special committee set up to explore these sore spots.

The Saskatchewan Division has a rather different story. Their actions during the election campaign have been widely criticized in the press and there seems little doubt that nothing they could have done would have resulted in a favourable press during that campaign. Dr. Forrester now reports that several papers are now carrying stories or editorials indicating some support for the profession and some opposition to the government plans. The difficulty in assessing the effects of the Saskatchewan Division's pre-election activities was recognized, but the opinion was expressed that these activities were in fact responsible for the fact that the C.C.F. Party hold under 50% of the popular vote where pre-election predictions would have placed it at about 60%.

The Ontario Division had an interesting side light on Mediation Committees. One district society which had been dubious because of the anticipated flood of nuisance cases had only two complaints over a period of some months. Apparently the existence of the Committee had been well enough publicized that an individual complaining to his friends about his doctor was told "Don't tell it to us. Tell it to the Mediation Committee."

Another interesting project was a series of lectures on ten medical specialties given to the Workers' Educational Association of Canada, endorsed by the Ontario Federation of Labour. This put the doctors in the unique position of appearing on the same platform with labour leaders and being publicly praised to union members.

The Quebec Division has always been weakened by the known language difficulties there. However, the C.M.A. seems to be gaining strength in that membership now exceeds 2,200, a sizeable increase over previous figures.

The Nova Scotia Division is co-operating in a CBC television series called "So Grows the Child" and starts with the first thirteen weeks dealing with pregnancy and prenatal care and going on with infant care later.

TV Filmettes were reviewed and approved. The current series of three costing approximately $5,000.00 to produce are broadcast free by TV stations as a public service. A new series is not contemplated as it has been found difficult to evaluate their worth.

Group Life Insurance

At the November Executive Committee meeting, approval was given to a proposal to increase the present life insurance coverage to $15,000.00 underwritten by the Travelers Insurance Co.

In order for the new plan to go into effect 75% of those now insured would have to enroll for the added coverage.

Those who refuse the added coverage would remain in the same group at the $15,000.00 level but could at a later date apply for higher coverage on evidence of insurability. All members will be considered one group for experience rating purposes.

Those who select the added protection will be subject to the following coverage formula:

Under age 35	$15,000.00
Age 35 but under age 40	$30,000.00
Age 40 but under age 60	$45,000.00
Age 60 but under age 65	$22,500.00
Age 65 but under age 70	$7,500.00

If additional coverage is not taken according to this age formula it can only be added at a later date on evidence of insurability, conversely if a member eligible for less than $45,000.00 (under age 40) wishes the maximum coverage, he may apply for same "on evidence."

The MM.S. has been asked to proceed with canvassing of members and institution of the policy.

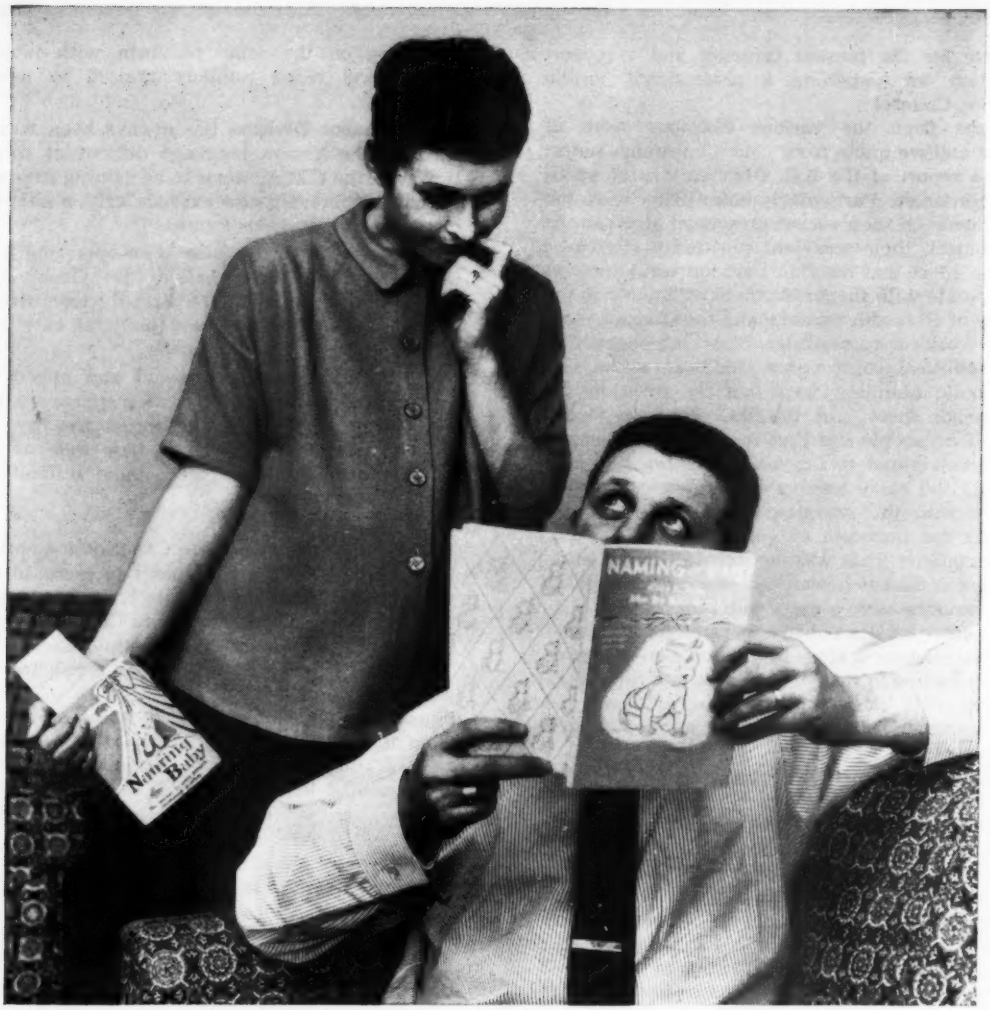
Physical Fitness

That which most of us aren't according to Prince Philip, will receive a boost through a C.M.A. sponsored conference in March, 1961. Dr. Max Avren has accepted as this Divison's representative.

The Best Yet Department.

One reply to the recent radiation survey indicated that the only radiation emitting source was the member's wrist watch and he would be pleased with a free inspection service — but not on Saturday nights!

R.P.H.S.



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CANADA'S PREMIUM INFANT FORMULA MILKS

Brandon and District Medical Society

A meeting of the Brandon and District Medical Society was held in Brandon on Wednesday, Nov. 30th, 1960.

In addition to 27 members from Brandon, the following places were represented: Boissevain, Carberry, Minnedosa, Neepawa, Ninette, Oak Lake, Oak River, Rivers, Virden, Waskada and Wawanesa. The visiting team included Dr. H. L. McNicol from Flin Flon, President of the Manitoba Medical Association, Dr. M. T. Macfarland, Executive Director, and Drs. J. P. Gemmell and F. R. Tucker, guest speakers from Winnipeg.

The Scientific Session was convened at the Nurses' Residence, Brandon General Hospital, at 3:00 p.m. Dr. Tucker spoke on "Low Back Pain," and Dr. Gemmell spoke on "Management of Diabetes Mellitus." Each paper was followed by lively discussion. Coffee was served through courtesy of the Superintendent of Nurses and Hospital personnel.

The Business Session was presided over by the President, Dr. D. M. McPhail, and Minutes of the previous meeting at Clear Lake on June 1st, 1960, were approved. Copies of a letter from the Department of National Defence re emergency medical treatment of civilian personnel at Camp Shilo by Armed Forces Medical Officers had been circulated and the suggestion was approved on motion of Drs. H. S. Evans and R. F. M. Myers.

Correspondence from M.M.A. was read as follows:

1. November 17th re formation of a Committee with representatives from Government, Manitoba Medical Service and Manitoba Medical Association to deal with day-to-day problems of Medicare.

2. November 15th and 25th re appointment of a Commission to consider the impact of Medicare and any extension of it on medical education. (Copies of the letters were sent to M.M.A. Sections, District Medical Societies, and members). Following considerable discussion Dr. Purdie said three elements must be considered: (1) Medical teaching, (2) Government policy, and (3) Economics.

Dr. Purdie moved, seconded by Dr. McMillan that a Committee be named by the Chairman to prepare a brief for presentation at a special meeting of the District to be held in January, 1961. Carried. (The Chairman named Drs. J. M. Matheson, Brandon, Chairman; R. P. Cromarty, Brandon, G. Lambertsen, Neepawa, J. D. McMillan, Oak River and W. Malyska, Deloraine).

Dr. H. L. McNicol and M. T. Macfarland discussed the formation of Tissue Committees by reference to the following:

1. Report of Executive Committee to M.M.A. Annual Meeting, September 27, 1960.
2. Minutes of meeting with District Medical Society representatives, September 28, 1960.
3. Manitoba Regulation 51/60 which appeared in the Manitoba Gazette on September 24, 1960.
4. Manitoba Medical Review, Vol. 40, No. 9, P. 733 (November) 1960.
5. Draft minutes of meeting on November 28th, 1960.

Brief reference was made to Standards being prepared by Dr. Carl Wood, M.H.S.P., for discussion by M.M.A.

Following the business session the reception and dinner were held in the Prince Edward Hotel when numbers exceeded the estimate.

Dr. H. L. McNicol, President, brought greetings of the Association.

Guests were later entertained at the home of Doctor and Mrs. R. O. McDiarmid.

M. T. M.

Clinical Reviews

MAYO CLINIC AND MAYO FOUNDATION

ROCHESTER, MINNESOTA

APRIL 10, 11, 12, 1961

Staff members of the Mayo Clinic and the Mayo Foundation for Medical Education and Research will present again this year a three-day program of lectures and discussions on problems of current interest in general medicine and surgery.

The American Academy of General Practice and the College of General Practice of Canada have advised the Committee on Clinical Reviews that up to 21 hours of Category I credit may be obtained by members of the American Academy of General Practice or the College of General Practice of Canada attending.

There are no fees for this program.

The number of physicians who can be accommodated is necessarily limited. Those wishing to attend should communicate with the Clinical Reviews Committee, Mayo Clinic, Rochester, Minnesota.

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Obituaries

Dr. Jack Brener

Dr. Jack Brener, 56, head of the Department of Anaesthesia at Misericordia Hospital, died on Nov. 13th after a lengthy illness. He graduated in 1928 from the Faculty of Medicine, University of Manitoba and was certified in anaesthesia by the Royal College of Physicians and Surgeons of Canada. He is survived by his wife, two sisters and a brother.

Dr. Robert N. Burns

Dr. Robert N. Burns, 83, died November 25th. Born in Burford, Ontario, he came to Winnipeg in 1883, was educated in the schools there and graduated in arts from Manitoba College and in medicine from Manitoba Medical College in 1905. His internship was in St. Boniface Hospital until he began private practice in 1908. During his student days he played on several championship soccer teams. He is survived by a sister.

Dr. William A. Chestnut

Dr. William A. Chestnut, 79, of Moosomin, Sask., died on November 15th. He will be remembered by many of the older graduates of Manitoba Medical College from which he graduated in 1913. He practised in Teulon, Transcona, Tyndall and Minto before moving to Moosomin in 1919, where he played an active part in the community. He is survived by his wife, three sons, one of whom is Dr. Harold W. Chestnut of Moosomin, and two daughters.

☆

An Appreciation

At times only when someone has passed from our midst can we realize the full stature of the man. The setting of the sun throws his figure into bold relief. Such a man was Walter Tisdale.

Reared in the rolling country around Baldur by parents who had scientific training and a love of good books, he developed a deep moral earnestness, a love of nature and a taste for reading. The early bent of his mind may be judged from a quotation from a toast he proposed at a school reunion fifty years ago when he was in his early twenties:

> "To be a strong hand in the darkness to another in time of need, to be a source of strength to a human soul in a crisis of weakness is to know the glory of life."

Medical readers will remember him through professional and hospital contacts; they will recall his gifts of leadership as president of The Winnipeg Medical Society and the Manitoba Medical Association and as chairman of the Manitoba Medical Service Board, also his initiative in instituting the Medical Benevolent Fund.

However, his interests were not confined to his own practice or to medical organizations. His love of nature led him to support forms of conservation such as protection of wild life and to the setting aside of wilderness areas for enjoyment for all time. More than once he visited the great game preserve at Aransas, Texas, on the Gulf of Mexico where the few remaining whooping cranes winter. Among his personal friends he reckoned Peter Scott, British bird artist and son of Captain Scott who perished heroically at the South Pole, and Clarence Tillenius, Manitoba wild life artist.

His dear helpmeet, Mrs. Mary Tisdale, received many letters at his passing. One is privileged to quote from some. From Clarence Tillenius who has been commissioned by the Canadian Government to paint murals for the National Museum at Ottawa:

> "When we were wandering over those magnificent wilderness ranges in the Yukon I thought of him and of the pleasure he would feel in knowing that most of this great mountain chain will never, probably, be changed from what it is today. There was always something of the same spirit of the mountains in Walter — a sort of benign tolerance for the frailties of human kind. And his work necessarily brought these frailties before him in a measure beyond what men in other callings are called on to cope with. We shall all be a little better for having known him."

From Sigurd F. Oleson, Ely, Minnesota, Chairman of the U.S. President's National Parks Commission:

> "All day yesterday during the beautiful color surrounding us our thoughts were with you and Walter. Somehow it seemed fitting that his going should have been timed with so much beauty and loveliness. No autumn will ever come without that memory."

Clarence Cottam, Director Welder Wildlife Foundation, Sinton, Texas, wrote:

> "His dedication to ideals and his efforts to ensure a sound management and utilization of our public resources have endeared him to a lot of us in all parts of America and probably also in Europe."

My acquaintance with Walter began when he entered Manitoba Medical College; I being then an instructor in anatomy. After the first World War I had the pleasure of meeting him in consultation in Russell and when he came to Winnipeg we became friends. With others I listened with delight to his address on retiring from the presidency of the Winnipeg Medical Society and I cherish the reprint of "Nature That Dear Old Nurse." His pleasure in good books led him to adopt for his presidential address to the Manitoba Medical Association in 1954 the subject "A Doctor Reads." A month before his death he wrote from his summer home on West Hawk Lake a poem in prose "The White Birch, Our Lady of the Forest."

In the last two years I watched him preside over the meetings of the council of the Manitoba Museum Association and came to realize more fully his capacity for leadership and his singleness of purpose in seeking to preserve for all people the goodly heritage with which Providence has blessed this province.

He rests from his labors and his works do follow him.

Ross Mitchell.

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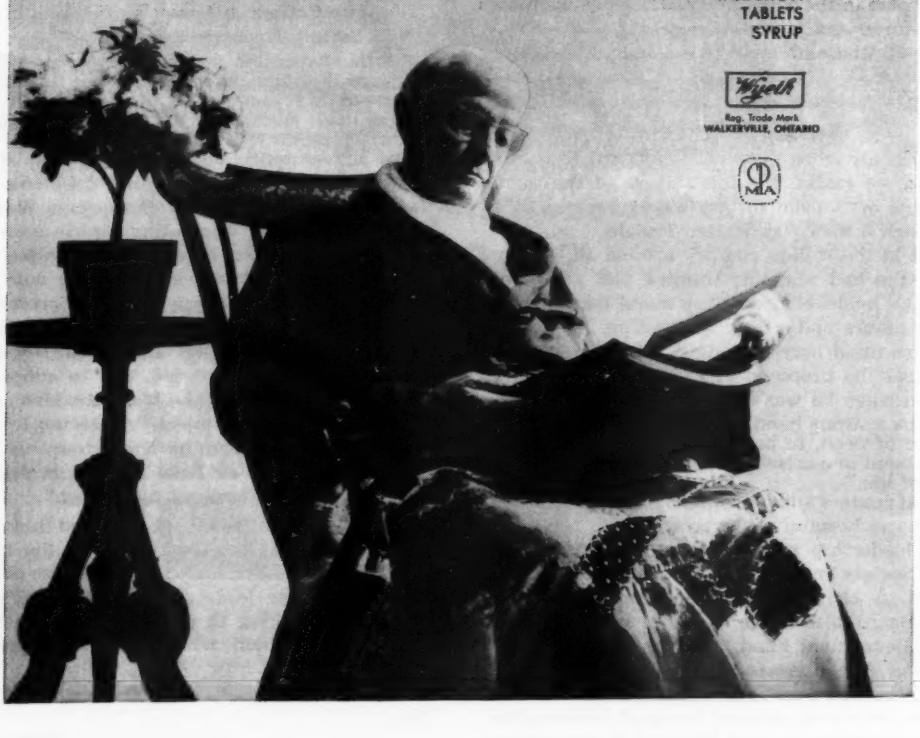

Social News

Reported by K. Borthwick-Leslie, M.D.

I have been mildly reprimanded by one of our senior men, previously rather a fan. Why? My Xmas page lacked sparkle, oomph, **and** news!

The sparkle and oomph, probably were and still are among the missing. The news . . . Really, one has to have some authentic foundation before reporting. Over the festive season, the activities have been multitudinous, varied and mighty interesting, but reportable? Hardly.

Our news via the press has been scant, but most interesting.

☆

In the latter part of November, the Department of Paediatrics, Faculty of Medicine, U. of M., were hosts to Dr. Charles A. Janeway, Professor of Paediatrics, Harvard Medical School and Paediatrician-in-Chief, Children's Medical Centre, Boston.

Dr. Janeway met in conference with students and members of the staff, as well as lecturing to the students on "Problems of Infection During the First Year of Life," the faculty research group on the subject of "Hypersensitivity and Disease." The highly stimulating scientific events ended socially in a similarly enjoyable dinner given in honor of Dr. Janeway by the Winnipeg Paediatric Society.

☆

We welcome back a wandering native son, John Michael Trainor, B.A. (U. of M.), M.D. (McGill '55), Certified Clinical Pathologist (Can. and U.S.A.).

Dr. Trainor took his postgraduate training at the Parkland Memorial Hospital, Dallas, Texas (Southwestern U. of T.) with special Pathological training in the Francis Delafield and Presbyterian Hospital, New York 1956-58, followed by two years with the Ohio State University Hospital, Columbus — then home to the Medical Arts Bldg., Winnipeg.

Michael has been appointed full time Staff Pathologist for Grace Hospital and is also very busy organizing a broader laboratory service to the profession at the old stamping ground, 1 Medical Arts. Needed? Space — more space! Good luck, Dr. Trainor.

Last spring the Bulletin officially welcomed Dr. and Mrs. Leslie H. Truelove to Winnipeg. Dr. Truelove being Chief of Staff, Rehabilitation Hospital. Now Mrs. Rosamund Truelove (pen name R. M. Dashwood) will have her first book, "Provincial Daughter" published early in 1961. I like her naive comment "At present I am expecting my fourth child and first book in the spring."

Congratulations to Mrs. Truelove and all the best wishes for the double launching.

☆

Seed catalogues in the mail! Melting icicles on the roof! Around the second corner — spring. Around the **first** corner, watch for it! That always large social event, the annual Valentine party by the General Practitioners' Association — Saturday, February 11th, 1961, at the Royal Alexandra Hotel. Cocktails 6 p.m. Dinner, Dance, Entertainment, Fun. Dress optional. Circle the calendar date stat., please. Dr. Peter Shelton: JU 2-5509 is in charge of publicity.

☆

Announced just too late for the Xmas page, by our latest grandparents:

Dr. and Mrs. M. B. Perrin, all puffed out about the arrival November 28th of their granddaughter, Kimberley Dwana Moseley, in Odessa, Texas. Welcome to our senior group, Pitt.

☆

Have just talked to Mo Pierce, who spent the festive season in Toronto, bathing, etc., that grandson of his. So far he hasn't done a prophylactic T & A, but then the boy does just weigh 10 plus pounds.

☆

Dr. and Mrs. J. W. O'Toole announce the birth of Robert John—December 8th. Jimmie says this one is by far the most handsome of the lot, even without a bow tie.

☆

Dr. and Mrs. C. Hatfield and brother Kenneth welcome the arrival December 26th of Carol Dawn.

☆

Dr. and Mrs. K. R. Crawley (U. of M.), of Kalamazoo, Mich., report the birth of Debra Adelle, Dec. 16, 1960.

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MONTREAL CANADA

Sectional Meeting
AMERICAN COLLEGE OF SURGEONS
Fort Garry Hotel, Winnipeg April 6th, 7th and 8th, 1961
PRELIMINARY PROGRAM

The American College of Surgeons will hold the last of its four 1961 Sectional Meetings in Winnipeg. All members of the medical profession are invited to attend this Canadian meeting. Headquarters will be the Fort Garry Hotel.

Thursday, April 6

The opening session is one of three "How I Do It" clinics. Dr. Kenneth R. Trueman, Assistant Professor of Surgery, University of Manitoba, presiding:

Surgical Treatment of Varicose Veins — R. O. BURRELL, Winnipeg.

Abdominal Incisions — J. W. R. RENNIE, Winnipeg.

Biopsy of Uterine Cervix — BRIAN D. BEST, Winnipeg.

A Symposium on Trauma follows with George H. Ryan, of Winnipeg, presiding:

Complications of Intertrochanteric Fractures of the Femur — F. R. TUCKER, Winnipeg.

Fractures of Os Calcis — F. P. DEWAR, Toronto.

Subject to be announced — MARK B. COVENTRY, Rochester, Minnesota.

Following the afternoon Ciné Clinic film, "Lesions of the Fallopian Tube," narrated by Newell W. Philpott, Montreal, there will be a panel discussion on "Management of Acute Gynecological Lesions":

Presiding: ELINOR F. E. BLACK, Winnipeg.

Moderator: OTTO A. SCHMIDT, Winnipeg.

Collaborators: ALBERT B. BROWN, Saskatoon, KENNETH T. MacFARLANE, Montreal, and THOMAS R. NELSON, Edmonton.

The later afternoon session will consist of three papers entitled:

Intestinal Obstruction — ANGUS D. McLACHLIN, London, Ontario.

Excision Biopsy as Treatment for Cancer of the Face — WILLIAM P. KLEITSCH, Omaha.

Ampullary Sphincteroplasty in Common Duct Surgery — LYLE J. HAYS, Minneapolis.

Friday, April 7

The second "How I Do It" clinic, presided over by HARVEY L. McNICOL, Flin Flon, Manitoba, will present the following procedures:

The Treatment of Residual Common Duct Stone — A. C. ABBOTT, Winnipeg.

Closure of the Duodenal Stump and Its Modifications — L. R. RABSON, Winnipeg.

Surgery of Intracranial Vascular Malformations — DWIGHT PARKINSON, Winnipeg.

Operative Repair of Vertical Abdominal Incisional Hernias — CECIL W. CLARK, Winnipeg.

Dr. Malcolm MacCharles, Winnipeg, will be the presiding officer for the symposium "Pitfalls of Cancer Therapy" with the following participants:

Pitfalls in Recognition of Cancer of Stomach — I. S. RAVDIN, Philadelphia.

The Over Treatment of Early Cervix Cancer — JEAN PAUL A. LATOUR, Montreal.

Factors Modifying Irradiation of the Cancer Patient — R. J. WALTON, Winnipeg.

Pitfalls in Treatment of Cancer of Larynx — ALAN B. McCARTEN, Edmonton.

Pitfalls in Surgery for Cancer of the Large Intestine — JOHN M. WAUGH, Rochester, Minnesota.

Morley Cohen, Winnipeg, will moderate the early afternoon panel, "Management of Ischemic Lesions of the Leg." Collaborators are CECIL COUVES, Edmonton; ALLEN R. DOWNS, Winnipeg; DAVITT A. FELDER, St. Paul, and ERIC M. NANSON, Saskatoon.

The following papers will be presented at the late afternoon sessions:

Islet Cell Tumors of the Pancreas—EDWIN H. ELLISON, Milwaukee.

Fractures in Children — WALTER P. BLOUNT, Milwaukee.

Choice of Operation for Cancer of the Rectum — RUPERT B. TURNBULL, JR., Cleveland.

The Place of the Surgeon in Chemotherapy of Cancer — I. S. RAVDIN, Philadelphia.

The Influence of the Preoperative Assessment of the Gastric Patient Upon the Surgical Procedure — ERIC M. NANSON, Saskatoon.

Saturday, April 8

Harold E. Evans, Brandon, Manitoba, as presiding officer opens the Saturday "How I Do It" clinic. The subjects to be presented are:

Management of Crushed Chest — M. B. PERRIN, Winnipeg.

Colpotomy and Culdoscopy as Diagnostic Methods — A. S. MAJURY and W. J. FRIESEN, Winnipeg.

Repair of Flexor Tendons of the Hand in the Sheath Area — E. W. PICKARD, Winnipeg.

The Local Use of Cortisone in Orthopedic Conditions — E. S. JAMES, Winnipeg.

A panel discussion will follow, entitled "Present Status of Surgical Treatment of Duodenal Ulcer," moderated by CLAYTON H. CROSBY, Regina, and with collaborators EDWIN H. ELLISON, Milwaukee; ALLAN D. McKENZIE, Vancouver, and KENNETH R. TRUEMAN, Winnipeg.

The final session of the meeting will be a symposium on "What's New in Surgery," led by Dr. Colin C. Ferguson, Winnipeg.

Recent Concepts in the Management of Cryptorchidism and of Infant Hernias — ALEXANDER H. BILL, Seattle.

New Developments in Abdominal Surgery — LYLE J. HAY, Minneapolis.

Open Heart Operations for Mitral Insufficiency — RICHARD L. VARCO, Minneapolis.

What's New in Urologic Surgery—JAMES H. DeWEERD, Rochester, Minnesota.

What's New in Orthopedic Surgery — WALTER P. BLOUNT, Milwaukee.

Additional information about program and registration may be obtained by writing to:
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College of Physicians and Surgeons of Manitoba

Manitoba Has Welcomed The Foreign Physician

A post-war Canadian Club luncheon audience in Winnipeg was shocked to hear a federal government official declare that every group except the medical profession had acquiesced in the immigration policy of admitting European Doctors to enter Canada to relieve a shortage of practitioners in rural areas especially of the western provinces.

Such a large number of Canadian medical graduates were members of the allied armed forces that many areas were without a physician, and towards the end of War II the Canadian Medical Procurement and Assignment Board arranged for medical officers to be seconded for civilian duties.

A small number of medical refugees from war-torn countries had been admitted to Canada and since there was little or no provision in the various provinces whereby they might even be considered for examination and licensure such persons found employment with federal or provincial government agencies in spite of Medical Act provisions to the contrary.

The Civil Service Commission requires that candidates for medical appointment to a federal office hold valid registration in one Canadian province or be eligible for such licensure, whereas each provincial licensing body had been charged by the legislature to administer the Medical statute which has been enacted. There was no uniformity of provincial legislation, and no central clearing house for inquirers or applicants from outside Canada.

The Canada Medical Act was passed in 1912 to provide a qualification which would be acceptable in every Canadian province. While one section of the Act made provision for scrutinizing foreign diplomas, the following section indicated that no person would be admitted to the examinations until he had presented an enabling certificate from one of the provincial licensing authorities.

As a result when the immigration gates were opened without known prior consultation with any body representing the profession of medicine, persons were admitted to Canada on the understanding that they would serve for one year's employment. There were frequent instances of those whose passport or visa was labelled farmer, labourer, section man, orderly, nurse, nurses' aide or domestic who produced diplomas of medical qualification and sought immediate permission to relinquish the previous undertaking and to be employed as physicians.

With no provision in the medical acts for dealing with such a problem, and with no method of assessing the amount and type of medical training which the applicant may have had in many European schools, which, though once renowned, had undergone political upheaval, provincial licensing boards were faced with a problem of considerable magnitude.

In 1945, in Manitoba, the passage of legislative acts to license certain groups of lower educational standing had been accompanied by a Basic Sciences Act which provided that any person seeking to practise any one of the healing arts must provide evidence of recognized standing in five subjects, namely, Anatomy, Biochemistry, Pathology-Bacteriology (combined), and Physiology.

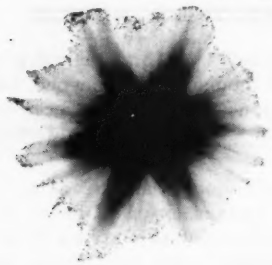
Since the Manitoba Medical Act decreed that the University was the sole examining body for provincial licensure, each candidate was expected to satisfy the requirements by way of examination, or otherwise, that he was proficient in the foundation subjects of the medical course. All applicants were dealt with individually in similar fashion whether from local, other provincial or other country schools. In that manner masqueraders were spotted since no candidates with irregular medical training succeeded in passing the examinations.

Following the satisfactory completion of Basic Sciences examinations, arrangements were made for the applicant to serve an interneship in an approved hospital. Such a period of service was required of students who had undergone a full course of medical instruction at the local university, and it was considered that a similar period of training was absolutely essential for those who came from other countries.

In order that the licensing body should not become a "mail-order" issue of Enabling Certificates, it was necessary for the applicant to agree to a personal interview either before the certificate was issued or when he came to write the examination at the University centre.

The requirement of Canadian or British Citizenship by three provinces was the result of the Medical Act or Regulations authorized by the provincial legislature, but was not applied in all cases since admission to Canada was under the aegis of the federal government which did not seek or receive advice from the individual licensing bodies before admitting the applicants to the country. It was felt that strict application of the requirement might prevent a legally admitted immigrant from earning a livelihood in the profession for which he had been trained.

By the time of the repeal of the Manitoba Basic Sciences Act in 1953, of the many applicants who had left Europe for political reasons, or because the additions to the profession had



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Cure rates of 93.1% using negative cultures for three consecutive months. Giorlando and Brandt[4] demonstrated repeated negative cultures for three to eight months in 54 of 58 vaginal trichomoniasis patients treated with VAGISEC liquid and jelly. Lack of cooperation was held responsible for the four failures.

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References: 1. Trussell, R. E.: New York Med. *13*:717 (Sept. 20) 1957. 2. Karnaky, K. J.: South. M. J. *51*:925 (July) 1958. 3. Decker, A.: New York J. Med. *57*:2237 (July 1) 1957. 4. Giorlando, S. W., and Brandt, M. L.: Am. J. Obst. & Gynec. *76*:666 (Sept.) 1958. 5. Weiner, H. H.: Clin. Med. *5*:25 (Jan.) 1958.

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been so numerous during the acceleration of medical courses and overcrowding offered little hope for establishing a satisfactory practise, approximately a score had succeeded in passing the examinations of the Medical Council of Canada and had been admitted to full registration in this province.

In the three year period ending in 1956, 36 European names had been added to the Register, many of whom did not remain in the province but used the facilities provided by the College of Physicians and Surgeons of Manitoba as a stepping stone to licensure in other areas or provinces.

The arrival in late 1956 and early 1957 of numbers of refugees who escaped from Hungary posed more problems since many came without satisfactory diplomas, without evidence of qualification and without finances. By agreement between the University of Manitoba and the licensing body documentation and examination fees were deferred until opportunity had been given the applicant to seek some employment.

In 1957, the Medical degree was awarded by the Faculty of Medicine, University of Manitoba, at the end of the fourth academic year following three years of pre-medical training. The University ceased to control the interneship as a part of the medical education. It was necessary for the licensing body to assume that responsibility for, since January 1st, 1954, one of the Medical Council of Canada's regulations required the completion of a satisfactory interneship year.

An Interne Register was created in 1958, to enroll candidates from the local University who wished to write the Dominion Council examinations, for those graduates of foreign schools who wished to qualify for the Enabling Certificate, and for those graduates of medical schools which have not been approved who wished merely to take a recognized course of post-graduate instruction but who had no intention of seeking subsequent M.C.C. examination and registration to practice medicine in the province.

	Total	Manitoba	Canada	U.S.A.	U.K.	Europe	Asia	Australia	N.Z.
1939	40	32	4	1	3	—	—	—	—
1940	45	35	6	1	2	1	—	—	—
1941	30	25	3	1	1	—	—	—	—
1942	27	20	3	1	1	1	—	1	—
1943	22	15	4	—	3	—	—	—	—
1944	14	10	2	—	—	—	—	2	—
1945	22	12	6	—	3	1	—	—	—
1946	143	116	22	1	2	1	—	1	—
1947	63	37	15	3	6	—	—	—	2
1948	61	35	6	2	15	—	—	3	—
1949	47	24	8	2	11	1	1	—	—
1950	84	43	16	2	14	2	6	1	—
1951	72	34	11	3	14	3	3	2	2
1952	84	43	4	2	16	11	7	—	1
1953	86	43	5	2	25	5	6	—	—
1954	99	40	11	2	28	10	6	—	2
1955	97	46	9	3	23	8	4	3	1
1956	94	30	15	7	19	18	5	—	—
1957	96	34	8	7	35	8	4	—	—
1958	83	27	7	4	34	9	1	—	1
1959	104	28	10	2	41	15	7	1	—
	1,413	729	175	46	296	94	50	14	9

The accompanying table outlines the total number of practitioners fully registered in Manitoba during the years 1939 to 1959 inclusive, with breakdown to show the number of graduates of the University of Manitoba, other Canadian Universities, and institutions in U.S.A., United Kingdom, Europe, Asia, Australia, and New Zealand.

One might wish for more uniformity of legislation, regulation and equanimity in the handling of applications but as long as there is free-will on the part of the individual to choose to come to Canada and as long as the B.N.A. assigns provincial autonomy "peaceful co-existence" will continue to be a necessity.

Meetings

During the College fiscal year, from October 1st, 1959, to September 30th, 1960, the following meetings have been held:

1 Annual Meeting of Council, October 31, 1959.

1 Special Meeting of Council, May 7, 1960.

3 Meetings of Executive Committee, February 3, April 28, and September 8, 1960 (2 before and 1 after May Council).

9 Meetings of Registration Committee, October 15, 1959, December 16, 1959, February 3, March 8, April 19, May 17, June 24, August 30, and September 9, 1960 (5 before and 4 after May Council).

A meeting was held on October 17, 1960.

A meeting of the Education Committee was held on October 18, 1960.

A meeting of the Finance Committee was held on October 24, 1960.

3 Meetings of Discipline Committee, October 20, 1959, March 30 and April 6, 1960 (3 before May Council) and one meeting was held on Oct. 24, 1960.

4 Meetings of Specialist Committee, October 28, 1959, December 11, 1959, June 21, 1960, and July 22, 1960 (2 before and 2 after May Council).

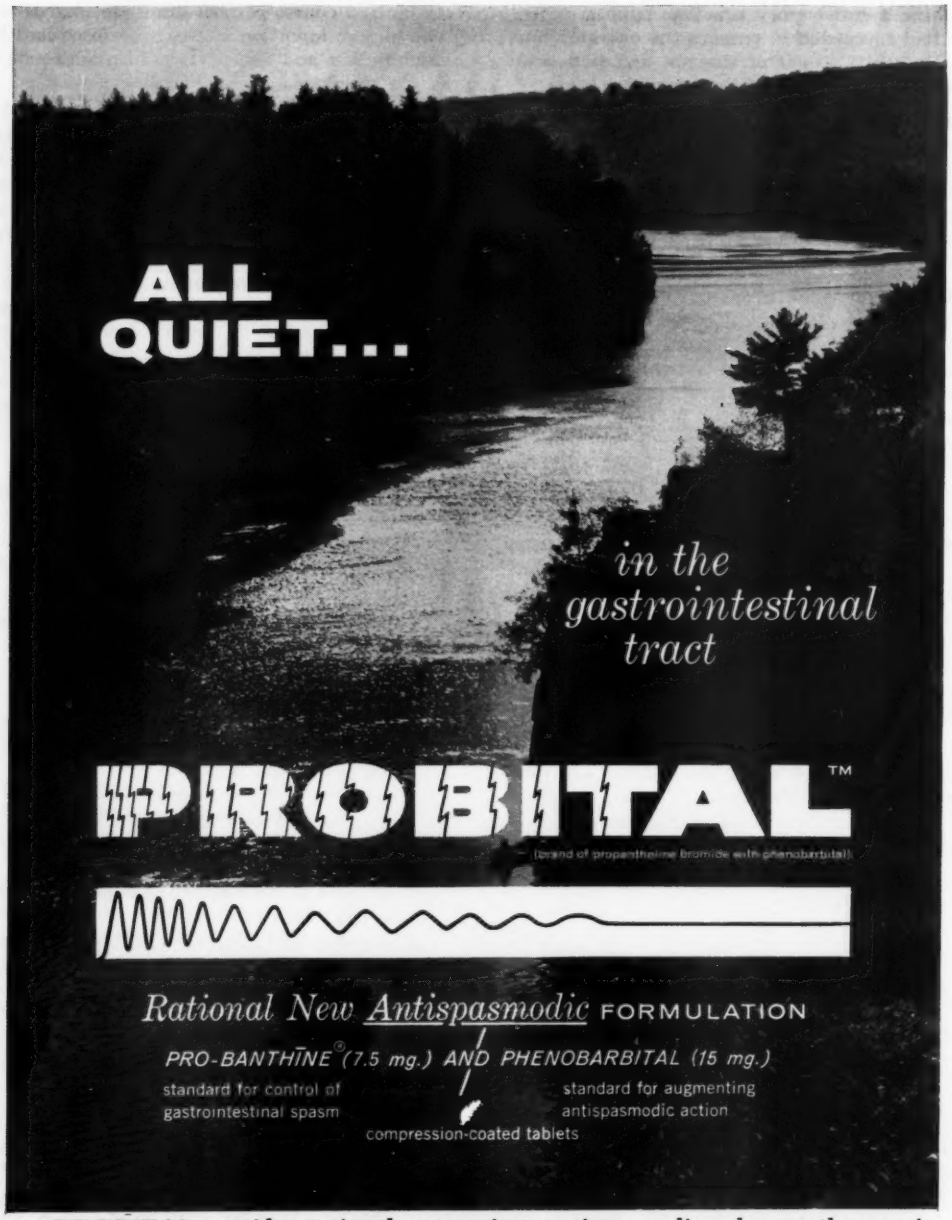
1 Meeting of Interneship Committee, January 6, 1960.

4 Meetings of Liaison Committee, November 30, 1959, January 22, 1960, February 2, 1960, and March 28, 1960. The latter was in regard to the M.M.S. Bldg.

A total of 26 meetings.

Student Registration

There are 57 students in first year medicine, five of whom are repeaters. 24 of these students have not registered with this College at this date.



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Credentials Committee

At the request of the College, the Credentials Committee of the University of Manitoba met on three occasions (January 21, 1960; May 5, 1960; July 21, 1960) and considered 20 applications; 15 were required to write Basic Sciences examinations, and 5 were not required.

Interne Enrolment

At the last Annual Meeting it was reported that since the Interne By-law was instituted on November 8th, 1958, 46 persons had been enrolled, two had been cancelled, one completed his interneship and one had not arrived due to immigration difficulties.

The past year has seen a marked advance in the numbers seeking Interne Enrolment and it would appear that this province has become the centre of attraction for applicants from many countries whose medical schools have NOT been approved by the legislature of this province.

Eighty-six persons were enrolled on the Interne Register since the last Annual Meeting of Council; 62 of these persons have had the Interne Enrolment cancelled and of this number, 27 have been issued Temporary licenses, and 16 have taken out full registration.

Enabling Certificates

A total of 149 Certificates were issued as compared with 98 the previous year.

Form "A" — 16 (Provincial Registration Certificates).

Form "B" — 79 (54 of which were issued to U. of Man. Graduates).

Form "C" — 54 (Interim Certificates — to final year University of Manitoba students).

Sixteen Provincial Registration Certificates were issued to Manitoba Registrants, 13 of whom qualified in the United Kingdom; 79 Form "B" were issued, 54 of which were issued to University of Manitoba graduates, and 25 to graduates of other schools which include 4 from Asia, 13 from Europe and 8 from United States.

Thirteen applicants were interviewed on October 15th, 1959, and on March 17th, 1960, when they came to Winnipeg to write the examinations. (Five others were interviewed on October 17th, 1960.)

Certificates of Licence (Temporary)

Fifty-three Certificates have been issued which is 13 more than for the same period last year.

The institutions in which the applicants qualified were University of Manitoba, 33; other Canadian universities, 8; United States, 1; United Kingdom, 9; European 2.

The majority of certificates — 34, were issued to hospital internes, 7 to members of the Armed Forces, 6 for those serving as Locum Tenens for another physician, 5 to an employee of the Federal or Provincial Government and 1 for combined interneship and Locum Tenens.

Forty-five were issued to residents of Greater Winnipeg while 8 were outside that area. Of the certificates issued during the year 8 were cancelled, 5 persons left the province and 3 certificates were replaced by full registration. The total number of certificates cancelled during the same period was 24, three were extended and three were re-instated, and 12 took out full registration.

Of a total of 422 certificates of Licence issued since the 1947 amendment to the Medical Act became effective in 1948, the number valid at September 30th, 1960, was 80.

Certificates of Registration

Eighty-seven Certificates of Registration were issued which is 17 less than for the comparative period last year.

Thirty-one were graduates of the University of Manitoba, 6 from other Canadian universities, 4 from U.S.A., 28 from the United Kingdom — three less than Manitoba graduates, thus reversing the trend of the past three years whereby more U.K. than Manitoba-trained physicians were registered — 10 were from Europe, 8 were from Asia. Of these 51 settled within and 20 outside the Greater Winnipeg area, and 16 have not practised in the province.

The years of qualification were as follows:

1935-39	2
1940-44	0
1945-49	10
1950-54	27
1955-59	48

which means that all but two qualified within the past 15 years, all but 12 within the past ten years and all but 39 within the past five years.

At the end of the College year, 7 of the 1959-60 registrants had moved from the province.

Specialist Committee

Thirty-six names were enrolled on the Specialist Register since the last meeting of Council. At the present time 14 names are enrolled temporarily on the Specialist Register until December 31st, 1960. A total of 390 names are enrolled on the Specialist Register.

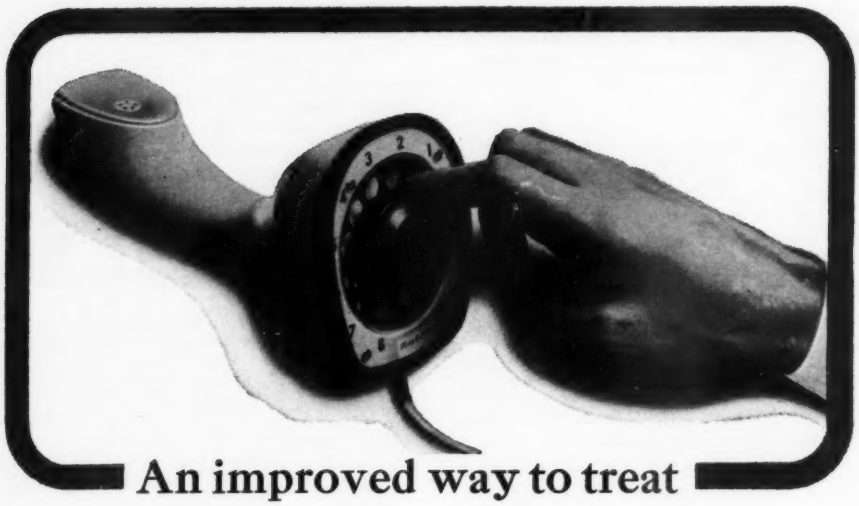
Number of Licenced Medical Practitioners in Manitoba 1950 - 1960

Year	Greater Winnipeg	Outside Winnipeg	Totals
1950	546	229	775
1951	564	235	799
1952	573	241	824
1953	604	260	864
1954	659	253	912
1955	712	262	974
1956	695	266	961
1957	723	276	996
1958	756	266	1,022
1959	807	258	1,065

The figures for September 30th, 1960, are as follows:

	Permanent	Temporary	Totals
Greater Winnipeg	788	62	850
Outside Winnipeg	245	18	263
	1,033	80	1,113

(There are approximately 2,135 names on the Register)



An improved way to treat edema and hypertension.

If you've found the thiazide diuretics helpful, you'll particularly appreciate DURETIC. It provides the familiar benefits of oral thiazide therapy, but in a new and (we feel) more practical manner.

Dosage, for example, is engineered for the most practical schedule of all: "Once a day, every day." Easy to remember, easy to stick to.

More important, duration of action of this single daily dose is over 24 full hours. This means your first dose is still producing good diuresis or hypotensive action right up to the time when the next day's dose takes effect.

A single dose of 10 mg. produces a peak natruretic effect. By this we mean that the maximum possible effect occurs with 10 mg., and greater doses do not produce greater natruresis. However, most patients require just 5 mg. daily for satisfactory response. Some can be maintained on as little as 2.5 mg. Such small doses afford a very safe therapeutic ratio.

If you're concerned about potassium, too, you'll like DURETIC. It produces the least potassium excretion of any available thiazide. Depletion seldom becomes a factor in your therapy.

DURETIC indications and side reactions are generally comparable to those for the earlier thiazides. Diuresis is prompt, but like other thiazides, several weeks may be required for full hypotensive effect. DURETIC has a potentiating action, and the dosage of other antihypertensive agents may have to be reduced when DURETIC is used with them. Our literature gives full details; ask any Abbott representative, or write Abbott Professional Services, P.O. Box 6150, MONTREAL.

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DURETIC (Methyclothiazide, Abbott)

Supplied in 2.5 mg. (No. 6827) and 5 mg. (No. 6812) square, grooved tablets, bottles of 100 and 1000.

ABBOTT LABORATORIES LIMITED — Montreal — Toronto — Winnipeg — Vancouver

Life Membership

During the year Life Membership Certificates were issued to Doctors S. Jauvoish, J. S. McInnes and T. A. Pincock.

The following are eligible for Life Membership in the College:

Bennett, Edward John ..... Winnipeg
Black, Robert ..... Winnipeg
Ginsburg, Bernard Joseph ..... Winnipeg
Graham, Gordon Douglas ..... Winnipeg
Hogg, Arthur Webster ..... Winnipeg
Kitchen, Hubert Daniel ..... Winnipeg
LaFleche, Joseph Georges MacKenzie .... Winnipeg
MacCharles, Malcolm Rutherford ..... Winnipeg
McNulty, Patrick Herman ..... Winnipeg
Munro, William Ewart ..... Winnipeg
Musgrove, Wilfred Merle ..... Winnipeg
Owens, Margaret ..... Winnipeg
Rutledge, Earl James ..... Winnipeg
Thorlakson, Paul Henry Thorbjorn ..... Winnipeg
Bruser, Harry Herbert ..... Rapid City
Edwards, Herbert Lyon ..... Birtle
Waldon, Harold Vincent ..... Pit Siding

A total of 17 Certificates.

Dr. Max Rady will be eligible for Life Membership prior to the end of 1960.

The following will be eligible for refunds under the new Regulations:

Black, Robert
Hogg, Arthur Webster
LaFleche, Joseph Georges MacKenzie
Rutledge, Earl James
Edwards, Herbert Lyon
Waldon, Harold Vincent

Changes in the Register

The College has lost 26 members through death in the past year, 13 from Winnipeg, 3 from rural Manitoba, and 10 from elsewhere. One name was erased from the Register.

Winnipeg	13
Rural Manitoba	3
Canada	9
England	1
	26

Year	Winnipeg	Outside Winnipeg	Not Practising	Other Provinces	Total
1954-55	6	2	6	16	30
1955-56	8	3	4	11	26
1956-57	7	—	4	5	16
1957-58	6	2	5	9	22
1958-59	1	1	4	3	9
1959-60	8	3	5	10*	26

*1 Eng.

Additions to the Register and changes in address numbered approximately 650 and enquiries from applicants for Enabling Certificates, Interne Enrolment, Certificates of License (Temporary) and Certificates of Registration were approximately 423.

Enquiries have been received regarding locations and every effort has been made to put enquirers in touch with available openings.

Annual Fees Outstanding

Current annual fees outstanding as at September 30th, 1960 — 8.

Emergency Medical Services Conference

During the year, your Registrar attended the Emergency Medical Services Conference at Arnprior, November, 1959. Registrars' Meetings in Banff, June, 1960, and Ottawa, September 11; the latter prior to Medical Council of Canada, September 13th and 14th.

Medical Act

Five hundred copies of the Medical Act were obtained from the Queen's Printer, and an amended list of the By-laws was prepared for insertion in the By-laws. The 1959 Register, and 1960 Addendum were printed and distributed, all of which is respectfully submitted.

M. T. Macfarland, M.D., C.M.,
Registrar.

Health League of Canada

The Health League of Canada Sponsors the 17th National Health Week, March 12th to 18th, 1961

The Health League of Canada was organized in 1919, as a voluntary organization, national in scope, and dedicated to raising the standards of living in this country by raising the standards of health.

It has been long established that the greatest single cause of poverty is illness. Most illness may be prevented, and it is the prevention of illness that is the goal of the league.

The League attempts to reach the very heart of the country — every Canadian family. This is done through Health Magazine, published every two months by the League, through National Health Week every February, and through National Immunization Week each Fall.

The press, radio and television receive authoritative material on health matters regularly throughout the year from the League headquarters in Toronto, which also distributes films, publishes pamphlets, arranges public meetings and other aids, leading to the fullest possible dissemination of up-to-date information on public health.

All fields of health are covered by the League, specifically: child and maternal health, nutrition, foodhandling, pasteurization of milk, fluoridation of water, social hygiene, immunization, gerontology, artificial respiration, and industrial health.

MIDNIGHT SNACKS for ICE-BOX RAIDERS			
Cold potato	½ medium	65	1.5
Chicken leg		88	15.0
Milk		140	7.0
Mouthful of roast		130	11.0
Piece of cheese		120	7.2
Left-over beans	½ cup	105	6.6
Brownie		100	3.9
Cream-puff		150	5.7
SWEETS			
Ice cream			
Plain vanilla			4.0
Chocolate and other			4.5
Milk sherbet			4.0
Sundaes, small chocolate			10.0
Ice cream sodas, chocol			3.5
CA		**Calorie Content**	**Protein Gm.**
Chocolate bars, 5c size			
Plain		210	2.0
With nuts		235	5.0
Chocolate covered bar		210	5.0
Chocolate cream, bonbo		110	0.6
Caramels			
Plain		115	0.5
Chocolate nut caram		160	0.8
DESSERTS			
Pie			
Fruit—apple, etc.	1/6 pie 1 average serving	560	5.5
Custard	1/6 pie 1 average serving	360	8.5
Lemon meringue	1/6 pie 1 average serving	470	6.0
Pumpkin pie with whipped cream	1/6 pie 1 average serving	460	8.3

ESKATROL*

SPANSULE*

sustained release capsules

. . . particularly useful in overweight patients who have exhibited nervousness and insomnia on previous reducing regimens.

During more than a year's clinical testing prior to introduction, 'Eskatrol' demonstrated a remarkably low incidence of side effects, particularly *nervousness* and *insomnia*. In one series of more than 200 patients given 'Eskatrol' in addition to a restricted diet, nervousness—the most frequent complaint with other appetite-curbing preparations—troubled only 5%. Only 4.6% experienced insomnia—an incidence close to placebo level.

Formula: Each 'Eskatrol Spansule' capsule contains 15 mg. of Dexedrine* and 7.5 mg. of prochlorperazine. (Prochlorperazine *alone* is presented in Canada by Poulenc Limited under the brand name Stemetil*.)

Dosage: Just one capsule taken upon arising.

Supply: Available in bottles of 30 and 250 capsules.

SK&F Smith Kline & French • Montreal 9

*Reg. Can. T. M. Off.

HOSPITAL MEETINGS

Hospital	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Children's	12:00 Surgical Rounds	10:00 Staff Rounds "B" Service 12:00 Postgraduate Seminars	9:30 Staff Rounds "C" Service 11:00 Clinical Path. Conference	11:00 Grand Ward Rounds	10:00 Staff Rounds "A" Service	9:00 Newborn Conference
Deer Lodge	Clinical Luncheon (1st Monday)			11:00 Ward Rounds		
Grace	12:00-2:00 p.m. Weekly Seminar	Clinical Luncheon (3rd Tuesday)		12:00-2:00 p.m. Weekly Seminar		
Misericordia		2. Clinical Luncheon				
Municipal			7:30 p.m. Review of Deaths (2nd Wednesday)			8:30 Clinical Staff Conf. and Ward Rounds
St. Boniface	11:00 Paediatric Rounds	11:00 Surgical Rounds	11:00 Grand Rounds 11:00 Cardio-Pulmonary Conf. (2nd Wednesday)	8:00 Orthopedic Rounds 11:00 Tumor Clinic 11:00 Obstetrical Rounds 12.00 Clinical Luncheon (2nd & 4th Thurs.	11:00 Medical Rounds 11:00 Cardio-Pulmonary Conf. (4th Friday)	
St. Boniface Sanatorium		12:30 Clinical Luncheon (2nd Tuesday)				
Victoria		Tissue Committee (1st Tuesday)			3. Clinical Luncheon 4. Active Med. Staff	
Winnipeg General		11-12:00 Medical Ward Rounds	9-10:00 Tumor Clinic 11:30-12:30 Chest Conference	12:15 Clin. Lunch. (1st & 3rd Thurs.)	11:30-12:30 Neurological Conference 4:00-5:00 Surgical & Service Rounds	10:00 Surgical Conference 11:00 O.P.D. Conference 11:00 Obstetrics & Gynaecology Conference
Brandon General			Medical Staff Lunch (Wed. prior to 2nd Tues. each month)			10:00-noon Clinical Drs. from S.W. Manitoba invited (Nov. to May)

mellaril*
thioridazine

FOR OFFICE AND INSTITUTIONAL USE

***MELLARIL** a broad-spectrum tranquillizing agent virtually devoid of all side effects.

DOCUMENTATION ON MELLARIL
USE OF THIORIDAZINE (MELLARIL) IN A VARIETY OF CLINICAL SETTINGS[1]

A. L. Jones M.D.† D. J. Lewis M.D.‡ and A. Miller M.D.,§ Toronto

"Search for a broad-spectrum, innocuous tranquillizing agent with reliable potency has been continuous because of the latent hepatic danger of the earlier agents and the basal ganglion disturbances of the later compounds. A particularly promising compound, thioridazine hydrochloride, was first reported upon clinically in 1958 by Fleeson[2] and Cohen[3]. Further reports by Azima[4] and Sloane[5] have been made in Canada. Trials to date have shown a potency which compares well with that of chlorpromazine. There have been no reports of jaundice, and few of extrapyramidal disturbance . . . Expectations from previous reports were confirmed by the Drug Research Unit Study".

SUPPLIED: Mellaril tablets, 10 mg., 25 mg., 100 mg.

REFERENCES

†Clinical Director, Toronto Psychiatric Day Centre; Clinical Teacher (Psychiatry), University of Toronto.

‡Assistant Psychiatrist, St. Michael's Hospital; Associate Professor (Psychiatry), University of Toronto.

§Clinical Director, Ontario Hospital, Toronto; Assistant Professor (Psychiatry), University of Toronto.

1. From the University-Provincial Drug Research Unit, Toronto: *Can. M.A.J.* 83: 948 (1960).
2. Fleeson, W., Glueck, B. and Herstad, G.: *Univ. Minnesota M. Bull.*, 29:274, (1958).
3. Cohen, S.: *Am. J. Psychiat.*, 115:358, (1958).
4. Azima, H., Durost, H. and Arthurs, D.: *Canad. M. A. J.*, 81:549, (1959).
5. Sloane, R. B. and Haden, P.: The use of thioridazine (Mellaril) in psychological disorders (to be published).

*Reg'd. T.M.

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Gelusil
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fast, lasting relief
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contains no laxative

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DEPARTMENT OF HEALTH & PUBLIC WELFARE

COMMUNICABLE DISEASE PICTURE

North of 53 District

No communicable diseases of any interest reported.

Northwestern District

Apart from six cases of scarletina, there were no communicable diseases of note.

Northern District

One paralytic poliomyelitis was reported, one infectious hepatitis, and one bacillary dysentery. The polio case occurring in a boy age two and a half years, from Duck Bay. A Type 111 virus was isolated. There is no record of any Salk vaccine being given.

Brandon District

Reports one case of diphtheria; eight infectious hepatitis and two whooping cough. The diphtheria case was a three year old boy from North Cypress, who had not been previously immunized.

Central District

Two cases of infectious hepatitis were reported.

Winnipeg District

Winnipeg district reports 31 cases of infectious hepatitis, four bacillary dysentery, nine scarlet fever, two pertussis, one diarrhoea of the newborn and two cases of diphtheria. The diphtheria cases were reported from outside metropolitan Winnipeg. One case was a boy age 10 from Ste. Anne, who had not previously been immunized. The second case was a 14 year old from Fisher L.G.D., who had not previously been immunized.

Southern District

Reports were received for two bacillary dysentery, one scarlet fever and one diphtheria. The diphtheria case was a seven year old female from Lorne, who had not been previously immunized.

LIST OF DEATHS FROM COMMUNICABLE DISEASES
November, 1960

URBAN: Cancer, 82; Diarrhoea & Enteritis, 5; Diphtheria, 2; Encephalitis (infectious), 1; Influenza, 2; Measles, 2; Meningitis (meningococcal), 1; Pneumonia Lobar (490), 10; Pneumonias (other forms), 31; Septicaemia & Pyaemia, 1; Syphilis, 2; Tuberculosis, 4; Whooping cough, 1; Chickenpox, 1; Other fungus infections, 1; Bacillary Dysentery, 1. Other deaths under 1 year, 38. Other deaths over 1 year, 411. Stillbirths, 25. Total, 621.

RURAL: Cancer, 18; Diarrhoea & Enteritis, 3; Encephalitis (infectious), 1; Influenza, 1; Measles, 2; Meningitis (meningococcal), 1; Pneumonia Lobar (490), 2; Pneumonias (other forms), 8; Tuberculosis, 3; Chickenpox, 1; Bacillary Dysentery, 1. Other deaths under 1 year, 11. Other deaths over 1 year, 140. Stillbirths, 9. Total, 201.

INDIANS: Cancer, 1; Diarrhoea & Enteritis, 1; Pneumonia Lobar (490), 2; Pneumonias (other forms), 2; Whooping cough, 1. Other deaths over 1 year, 3. Total, 10.

Unorganized Miscellaneous

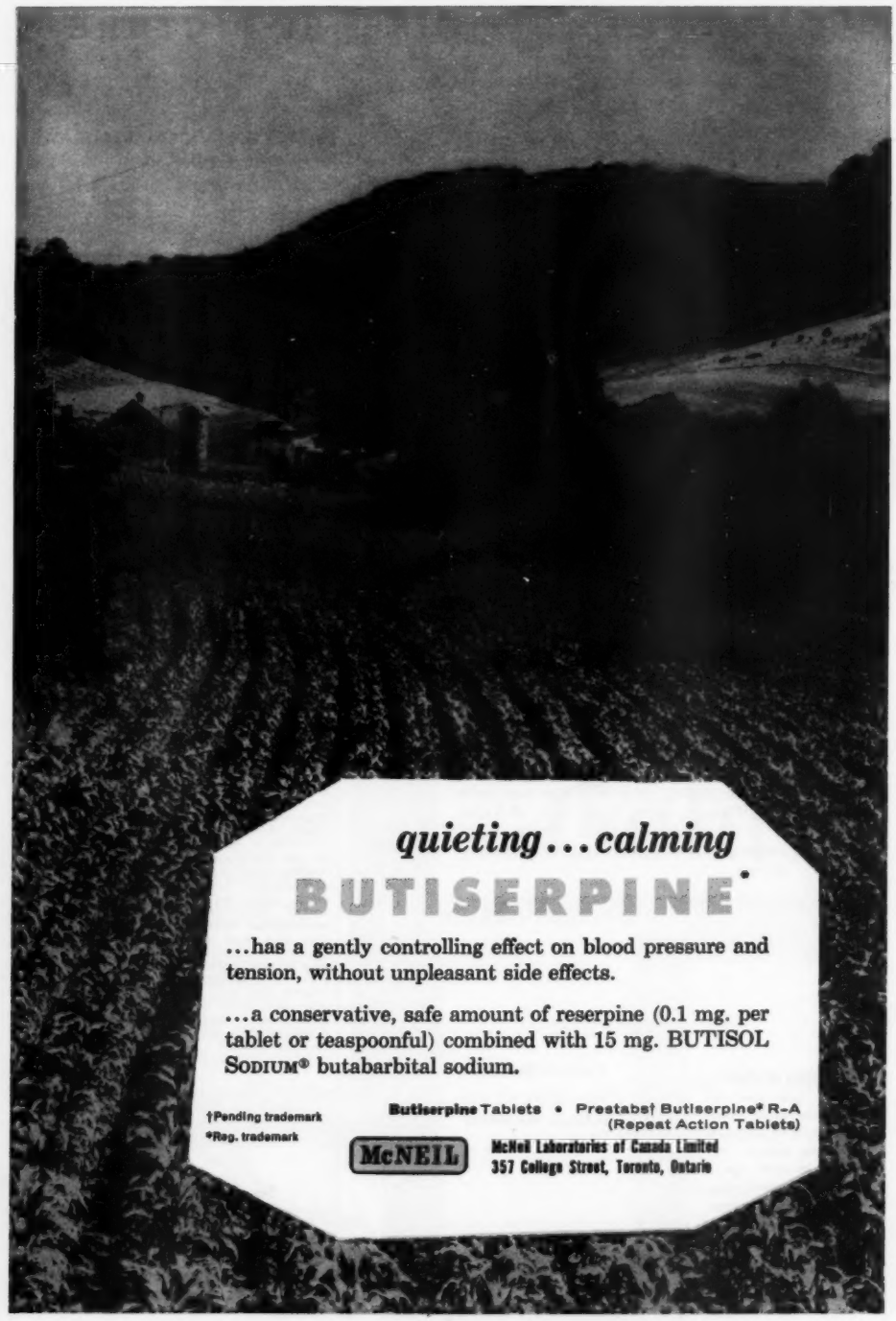
Reports were received on a case of encephalitis from Thompson. The child (a girl of five) died following admission to hospital.

General

Diphtheria continued to occur with undue incidence. There were four cases during the month bringing the total in the province for this year to eleven. The search for carriers is being intensively carried out in various parts of the province.

Only one case of paralytic poliomyelitis was reported during the month, bringing the total to date this year to twelve.

Infectious hepatitis continues to be the communicable disease most frequently reported with forty-two cases this month and a total to date of five hundred and three cases.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MANITOBA MEDICO-LEGAL SOCIETY

will hold a meeting in

The Medical College Auditorium

on

Tuesday, January 17th, 1961

8:00 pm.

Subject:

"Who is Fit to Drive"

Guest Speakers:

Dr. Norman Hill

Mr. Robert A. Baillie, Q.C.

☆

ANNUAL MEETING

and

SCIENTIFIC SESSIONS

The Western Division

of the

Canadian Anaesthetists' Society

Medical College Auditorium

Winnipeg

March 9th, 10th and 11th, 1961

A hearty welcome is extended to all doctors interested in anaesthesia to attend this Convention.

Alexander Gibson Memorial Lectureship

To commemorate Dr. Alexander Gibson's contribution to the development of Orthopaedic Surgery, the Orthopaedic Department of the University of Manitoba have instituted the Alexander Gibson Memorial Lectureship.

The inaugural lecture will be delivered by:

SIR WALTER MERCER

Emeritus Professor of Orthopaedic Surgery

University of Edinburgh

TUESDAY, JANUARY 24th, 1961 — 8:30 P.M.

MEDICAL COLLEGE AUDITORIUM

Sir Walter will speak on Edinburgh's contribution to medicine in America. This will include a biographical sketch of Dr. Gibson and his contribution in anatomy and orthopaedic surgery.

A cordial invitation to hear this distinguished visitor is extended to all members of the Association.

General Practitioner Required

Opportunity for a doctor to locate in private practice in western Manitoba town. Well equipped 17 bed hospital in large surrounding territory. For further information communicate with Mrs. A. J. Smith, Secretary-Treasurer, Rossburn Medical Nursing Unit, Rossburn, Manitoba.

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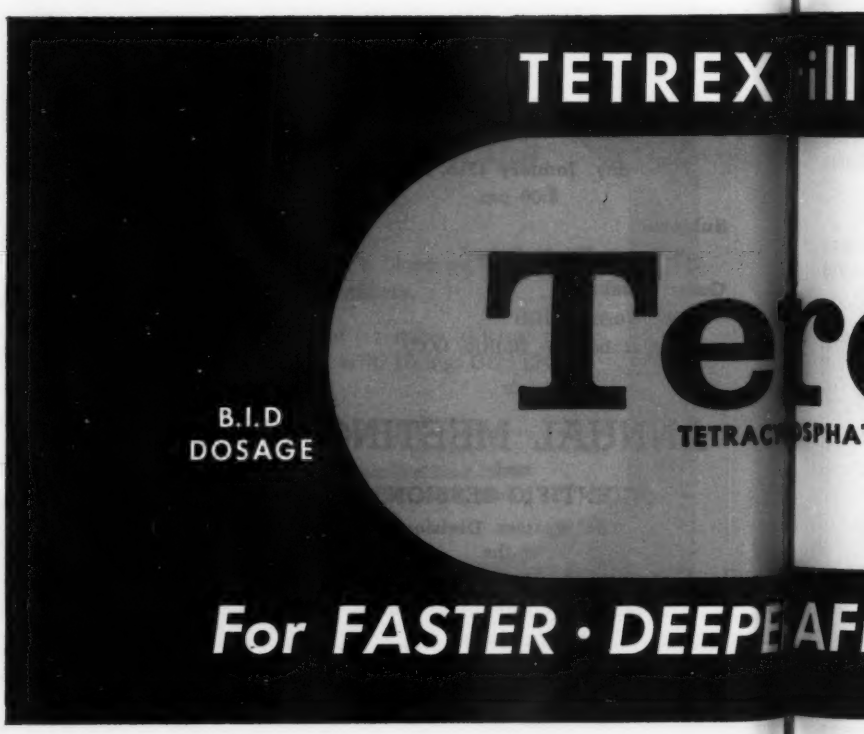
Poison Information Centre

Children's Hospital, Winnipeg
Re: Ingestion of Methyl Salicylate (Oil of Wintergreen)

Methyl salicylate is an extremely dangerous poison, and its ingestion carries with it a high mortality rate. As little as two teaspoons may prove fatal if the risk is not recognized and promptly dealt with. The following line is quoted from the Pharmacological Basis of Therapeutics, 2nd Edition, Goodman and Gilman, page 296:

"Hospitalization is particularly advisable in the case of methyl salicylate poisoning because children have been known to succumb a few hours after parents have been informed that recovery seemed assured or that the intoxication was inconsequential."

Efforts are being made to have methyl salicylate oil (oil of wintergreen) removed from druggists' shelves because of this risk and because of its limited value in present day medical treatment. It is important that all medical practitioners realize the possibility for serious illness following the ingestion of this substance. Prompt hospitalization is indicated for gastric lavage. If more than a few hours have elapsed after ingestion, it is important to obtain salicylate levels and to apply modern therapeutic measures in an effort to save the child's life.



Winnipeg Medical Society

The January meeting of the Winnipeg Medical Society will be held at the Medical College Auditorium on January 20, 1961, at 8:30 p.m.

Dr. J. E. Bennett, Senior Radiotherapist, St. Boniface Hospital, will be the speaker.

Dr. Bennet has returned recently from Rangoon, Burma. He served as consultant in Radio Therapy, under the Columbo Plan.

The title of his address will be "A Radiotherapist in Burma."

The program for the February 17th meeting is as follows: Dr. D. Gellman, Department of Medicine, University of Manitoba — "Diabetes and the Kidney" and Dr. A. Zipursky, Children's Hospital — "Vascular Purpura."

All Doctors Are Welcome

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